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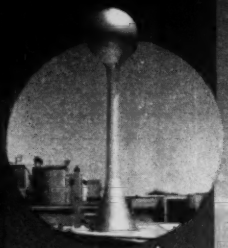
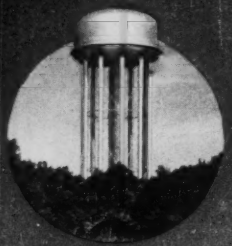
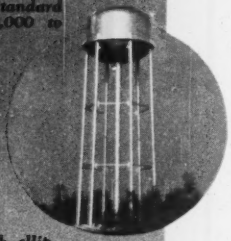
Symbols OF PROGRESS



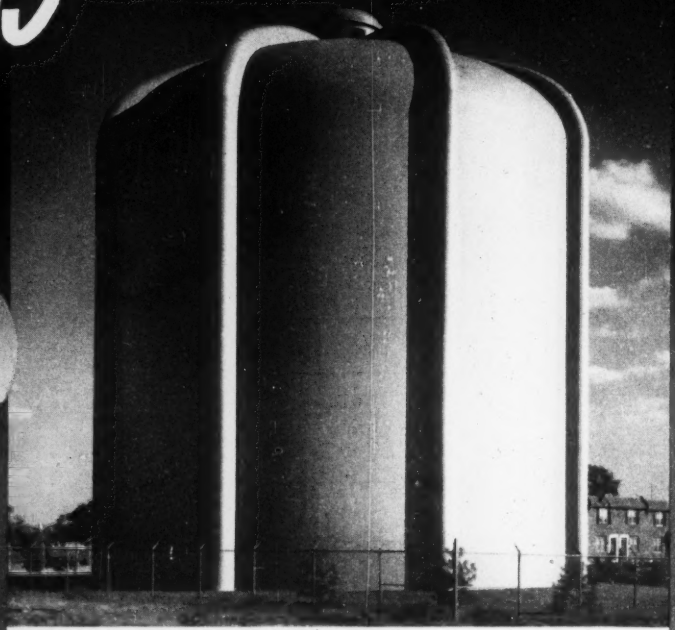
Waterspheres — built in standard capacities from 10,000 to 250,000 gallons.



Elevated tanks with radial-cone bottom—built in standard capacities from 500,000 to 3,000,000 gallons.



Elevated tanks with ellipsoidal bottom — built in standard capacities from 15,000 to 500,000 gallons.



Horton standpipe 79-ft. diam. by 83-ft. built for the Philadelphia Water Company at Clifton Heights, Pa.

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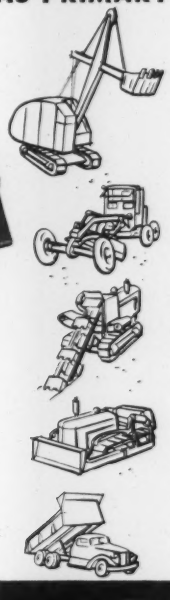

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ENGINEERING NEWS-RECORD

ABP Member ENR

Volume 149 December 11, 1952 No. 24

WALDO G. BOWMAN
Editor

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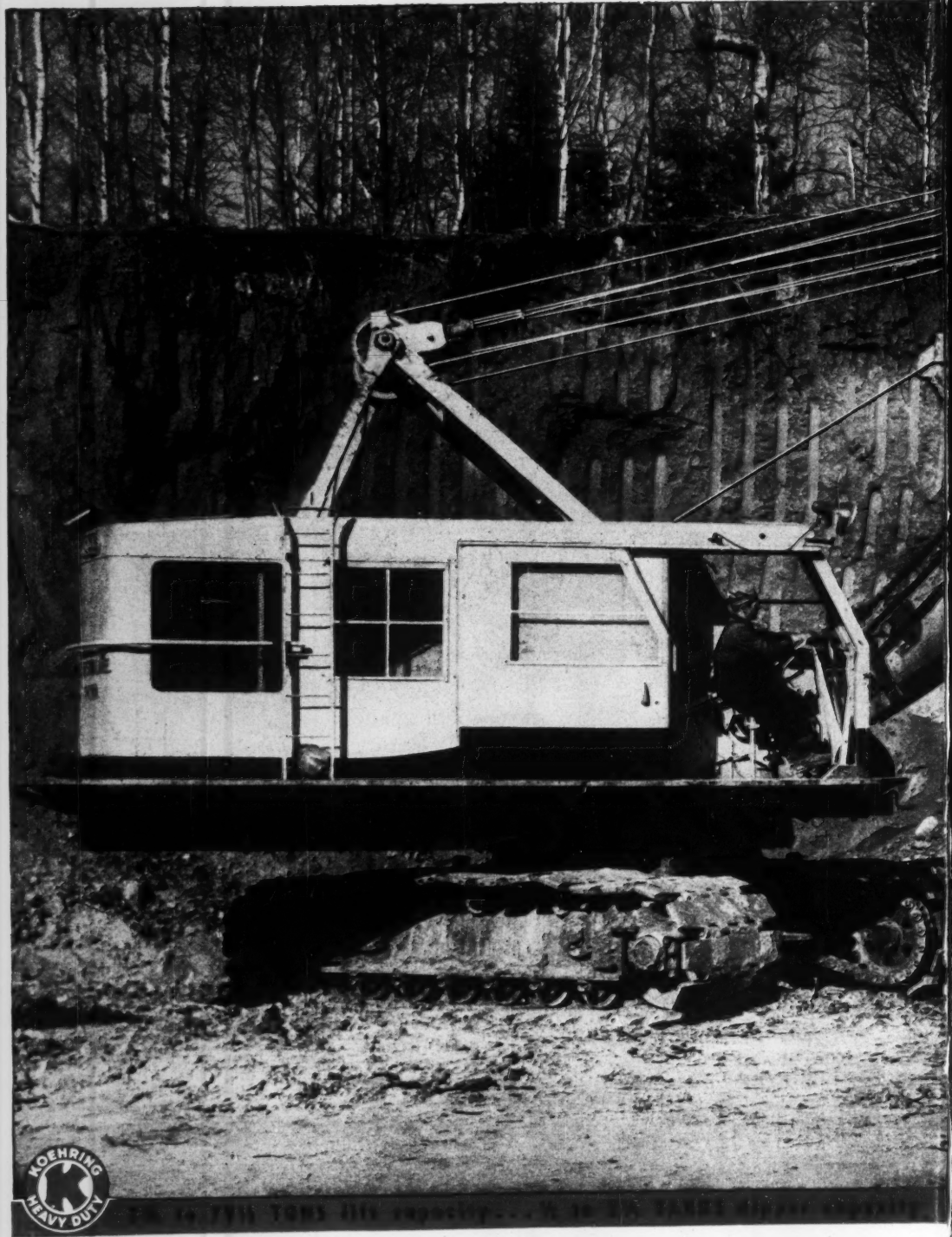
KOEHRING
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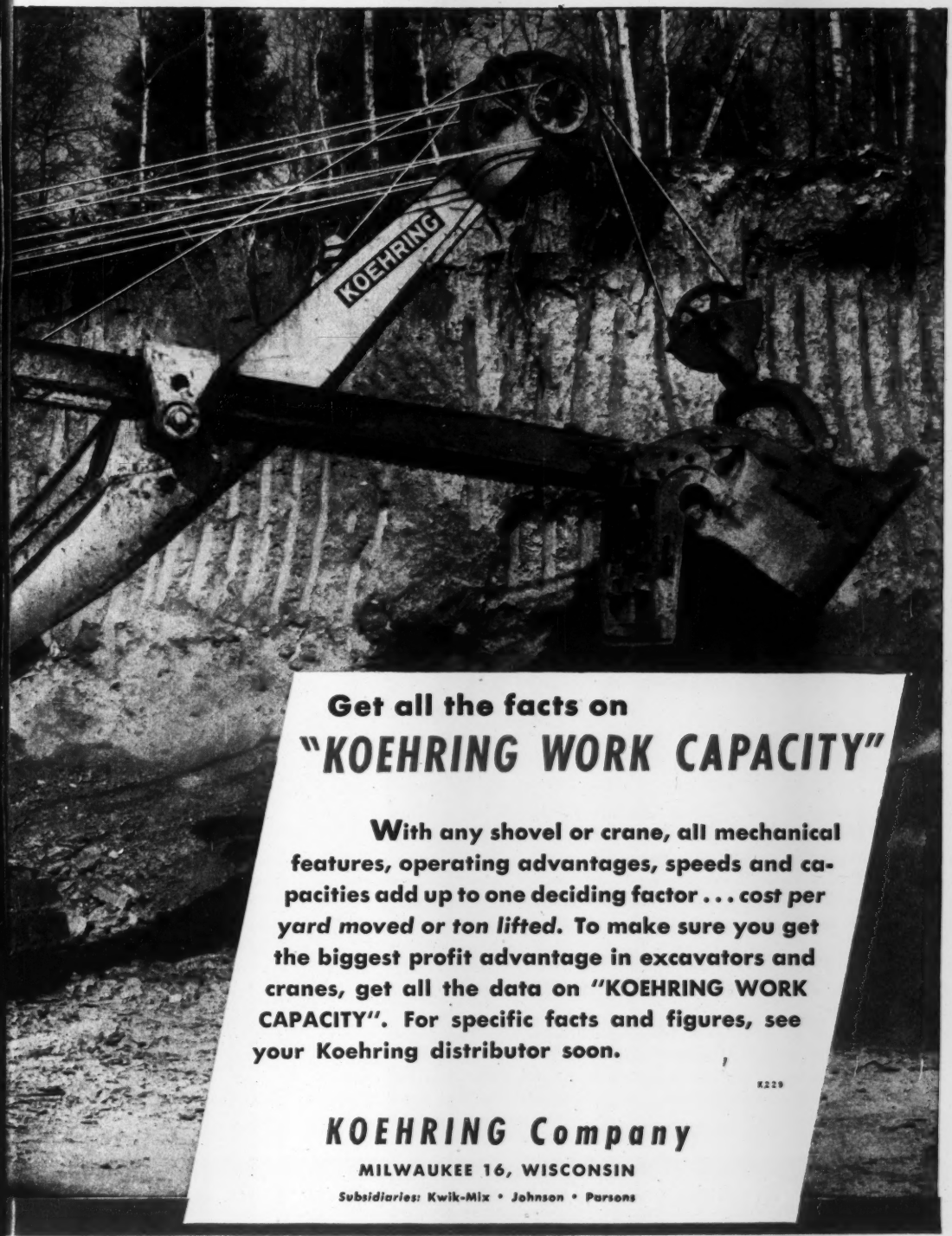

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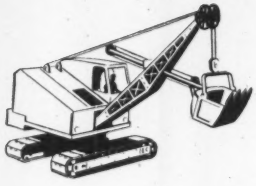

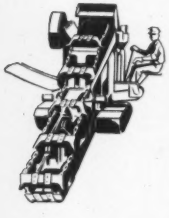

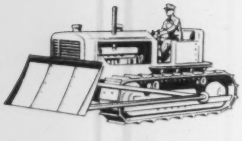

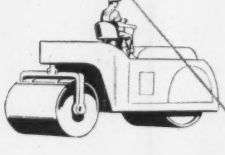

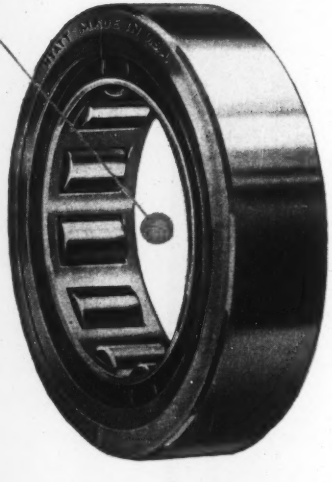

MANY of the leading manufacturers of contractors' equipment "build in" Hyatt Roller Bearings for sound dollar-and-cents reasons.

Hyatts help the equipment to operate smoother and longer with less cost for power, lubrication and maintenance.

To tackle the toughest jobs, on the roughest terrain, Hyatts for years have been the preferred roller bearings in such equipment as power shovels, tractors, trenchers, dump-trucks, scraper-loaders, road rollers and portable compressors.

And in all other industrial, agricultural and transportation equipment the name Hyatt is the guide to roller bearings of outstanding performance. Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

HYATT ROLLER BEARINGS

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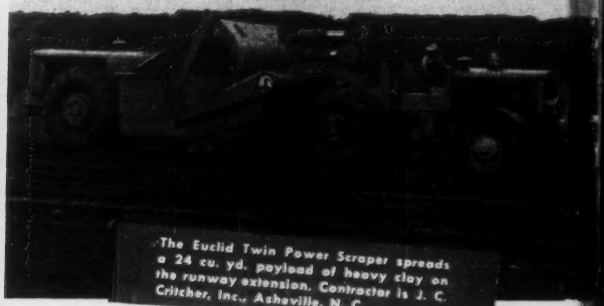
Getting big loads fast . . . and hauling them at speeds up to 29.5 m.p.h. . . . the Euclid Scraper maintained high production for the T. & H. Construction Company.



The Euclid Twin Power Scraper spreads a 24 cu. yd. payload of heavy clay on the runway extension. Contractor is J. C. Critcher, Inc., Asheville, N. C.

Help Beat Schedule at

CHARLOTTE AIRPORT

At Morris Field in Charlotte, N. C., four Euclid Scrapers—two Twin Power and two 15.5 cu. yd. "Eucs"—moved 1200 bank yards per hour on round trip hauls averaging a half mile. Commenting on this outstanding performance, Mr. J. C. Critcher, president of the prime contractor company, said, "High production and low operating costs proved to us that Euclid Scrapers are the best on the market."

A total of six Euclid Scrapers helped complete this 1,400,000 cu. yd. job in half of the allotted time. The T. & H. Construction Company used two 15.5 cu. yd. Euclid Scrapers to complete a section of the runway.

Euclid Scrapers have all the features required for low cost and high production—power and speed . . . fast, easy loading . . . large capacity . . . quick dumping . . . low operating and maintenance costs. Have your Euclid Distributor show you facts and figures on performance which prove that Euclids outperform all other scrapers of comparable size.

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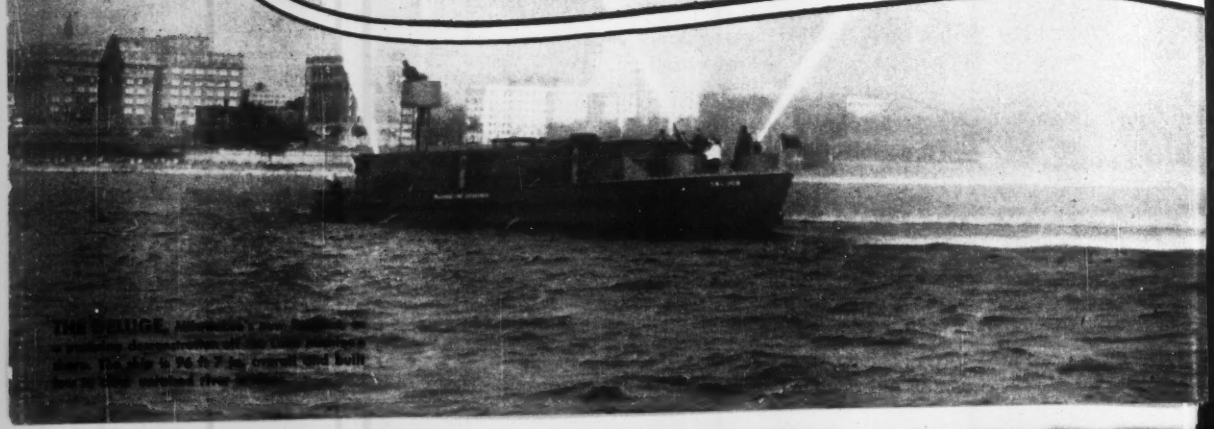
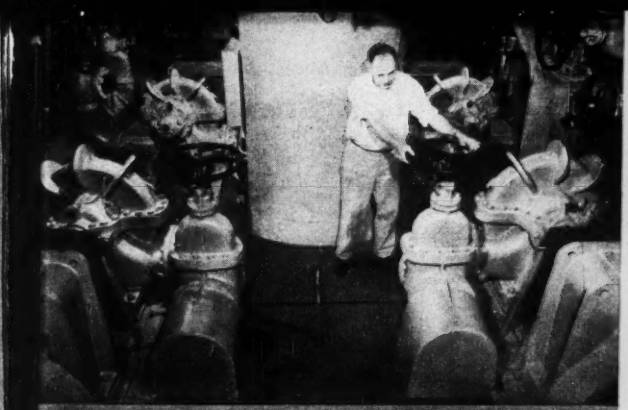
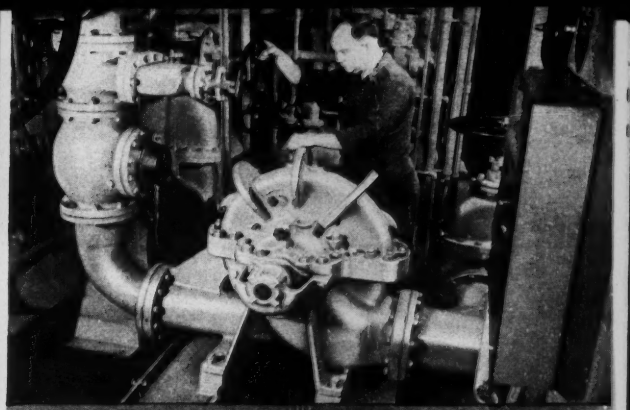
Allis-Chalmers Pumps Help Secure $900,000 Insurance Rate Slash





BELOW DECKS, four Allis-Chalmers pumps supply the 4 water-throwing monitors and 14 three-inch discharge ports. Single stage construction reduces space and simplifies maintenance. Four Nordberg 275-hp, 600-rpm supercharged diesel engines supply power for propulsion and pumping.



MAIN PUMPS are each rated 3000 gpm at 150 psi, but have exceeded this by 11%. They are Type S, 10 by 8-in., bronze fitted, double suction centrifugal pumps. In 1951 the Deluge responded to 49 alarms, spent 72 hr and 23 min on duty at alarms, and pumped 1,145,133 gallons of river water.

A $900,000 ANNUAL PREMIUM SAVING results from the recent reduction in Milwaukee fire insurance rates. One of the very few cities so benefited, Milwaukee can be proud of the trained personnel and complete equipment in its excellent fire department.

Over 90% of the city's municipal pumps are Allis-Chalmers. And A-C pumps are used exclusively on the new fireboat *Deluge* — an important factor in Milwaukee's Class I Fire Department rating and Class II Fire Insurance rating. No city ranks higher, and few as high, in these ratings by the National Board of Fire Underwriters.

The *Deluge* — with a rated capacity of 12,000 gpm and proven capability of 13,835 gpm — is the largest capacity fireboat west of New York City. A fresh water dreadnaught with reinforced welded steel hull, it doubles as an icebreaker in keeping the Milwaukee, Menomonee, Kinnickinnic rivers and Burnham canal navigable. And, in addition to fighting fires, its pumps have proven valuable in aiding snow disposal in the rivers.

The *Deluge's* first "work call" was to fight from its decks a waterfront fire in a waste paper warehouse. More often it works as a floating booster station, pumping river water into a dry pipeline network in the commercial area. This separate system is put into action at conflagrations to supplement the city water supply.

When *your city* plans expansion or modernization, do as Milwaukee and other leading cities are doing — take advantage of Allis-Chalmers experience in municipal pumping equipment. For detailed information just mail the coupon at right or call your nearest Allis-Chalmers office.

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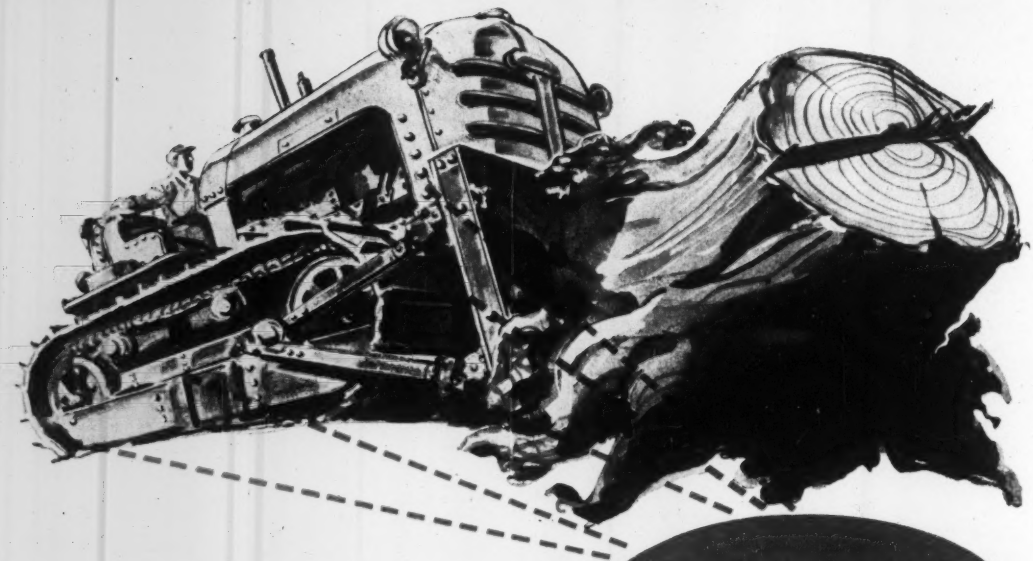

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READER COMMENT

Colored surfaces

SIR: Your article "How to Apply Color to Bituminous Surfaces" was of very timely interest (ENR Oct. 23, p. 41). Although the article referred to covers British research work, your readers may be interested to learn that there are in this country very successful colored bituminous emulsion base products on the market that have been proved by wide field use. Typical are emulsion base, mica-filled roof coatings meeting Military Specification MIL-R-3472. These were adopted following extensive tests by the Bureau of Standards. Military installations in all parts of the country are very successfully using this type of roof coating.

Compounded colored asphaltic emulsion base coatings, known commercially as "Wearcoat" and "Walk-Top", are also very widely used as non-abrasive, resilient, durable colored coatings for tennis courts, playgrounds and driveways. Laboratory tests have shown that the colored surfaces are from 7° to 10° cooler than similar black surfaces in strong sunlight.

Typical colored surfacings are the green and red (respectively) tennis courts at Harvard and Yale Universities, and the large red playground areas for the high schools in Providence, Rhode Island.

Nation-wide there are now hundreds of thousands of square feet of colored bituminous surfaces.

K. N. CUNDALL
American Bitumuls & Asphalt Co.
San Francisco, Calif.

Portable dredge pays off

Sir: The successful closing of the Missouri River at Fort Randall Dam, Pickstown, S. D., by the portable 30" Diesel electric hydraulic Dredge WESTERN CHIEF, owned and operated by the Western Contracting Corp., Sioux City, Iowa, as described and pictured in your issue of Aug. 14, 1952, and also other dredging at this location described in your Feb. 7, 1952, issue is very constructive reading.

The accomplishments of this portable dredge should pave the way for further consideration of this type of earth moving equipment for dam construction and/or similar work in accessible locations, both by the U. S. Army Corps of Engineers and the U. S. Bureau of Reclamation.

One of the reasons hydraulic dredges in the past have not been

(Continued on page 14)

On the job...and on the bond
EXPERIENCE COUNTS

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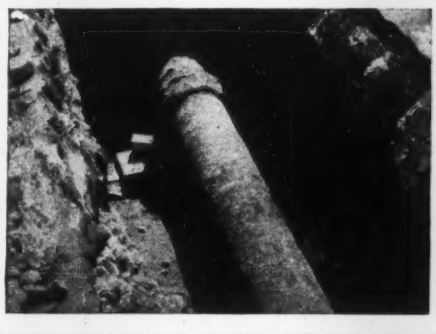
An ounce of proof is

worth a pound of claims!

For a permanent installation, such as a new water supply system, or extensions to an existing system, experienced engineers rarely take chances on a substitute for cast iron pipe. They know that 96% of all cast iron pipe, 6-inch and larger, laid in 25 representative cities over the past 130 years, is still in service. On the other hand, it is a fact that more than a few communities have had to replace water distribution systems, constructed with substitute pipe, long before the bonds issued against them were paid for.

The long life and low maintenance cost of cast iron water mains—and the consequent tax savings to the public—are matters of record. An ounce of *proof* is worth a pound of *claims!*



One of a number of cast iron water mains which have been in service in New York City for more than a century. Over 35 other cities have century-old cast iron mains in service.

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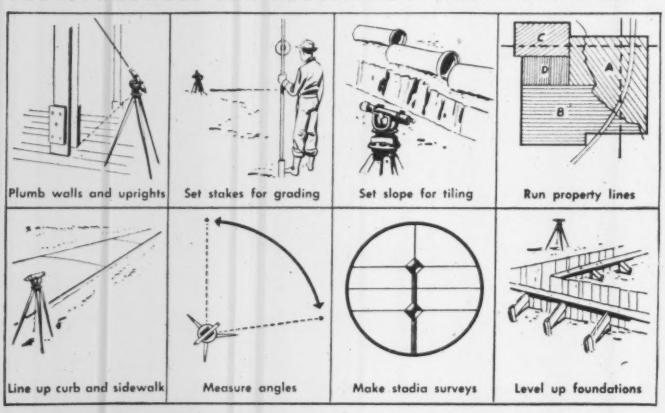

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READER COMMENT

more often employed on dam, earth and rock moving operations is the difficulty of moving large dredges overland to the site of the work. This problem was overcome by the Western Contracting Corporation by making the WESTERN CHIEF portable. It is of sectional construction so that it can be moved by rail or truck. This construction makes the moving of large dredging plants comparable to the moving of large draglines and shovels. Of course hydraulic dredges from time to time have been cut up and dismantled for transportation to inland construction jobs but this is a much more costly and slow operation than when the dredge is designed for this purpose as was the case with the WESTERN CHIEF for Fort Randall Dam.

It is well known by the U.S. Army Corps of Engineers and marine excavating contractors that there is no other earth moving equipment that can compare with a modern hydraulic dredge for excavating and pumping all types of materials for long distances, including hard rock when blasted. The advent of the portable hydraulic dredge, properly designed and constructed, for all purpose excavation opens a new field for this tool.

OLE P. ERICKSON,
Consulting Engineer,
Erickson Engineering Company,
Tampa, Fla.

CALENDAR

Highway Research Board, annual meeting, National Research Council Bldg., Washington, D. C., Jan. 13-16.

American Society of Photogrammetry, annual meeting, Shoreham Hotel, Washington, D. C., Jan. 14-16.

National Association of Home Builders, Conrad Hilton Hotel, Chicago, Ill. Jan. 18-22.

Association of Asphalt Paving Technologists, Rice Hotel, Houston, Tex., Jan. 26-28.

Mason Contractors Association of America, Sherman Hotel, Chicago, Ill., Feb. 1-4. California Street and Highway Conference, University of California, Berkeley, Feb. 4-6.

American Road Builders Association, Hotel Statler, Boston, Mass., Feb. 9-11.

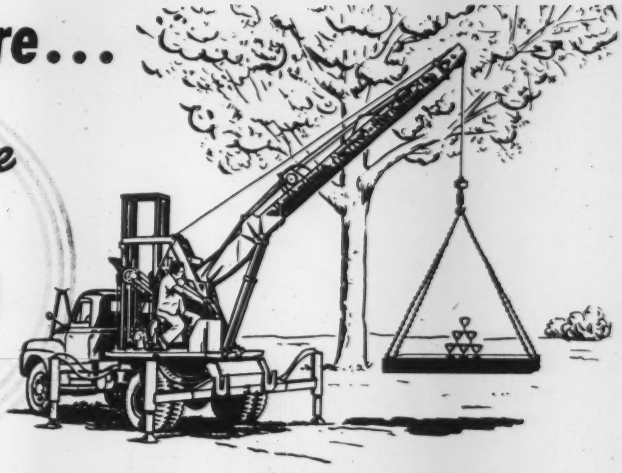
American Concrete Institute, annual convention, Statler Hotel, Boston, Mass., Feb. 17-19.

Ohio Water Clinic, Ohio State University, Columbus, Feb. 19-20.

Illinois Conference on Highway Engineering, Urbana, Feb. 24-26.

Industry conference on air pollution abatement, Hotel Statler, Detroit, Mich., Feb. 26-27.

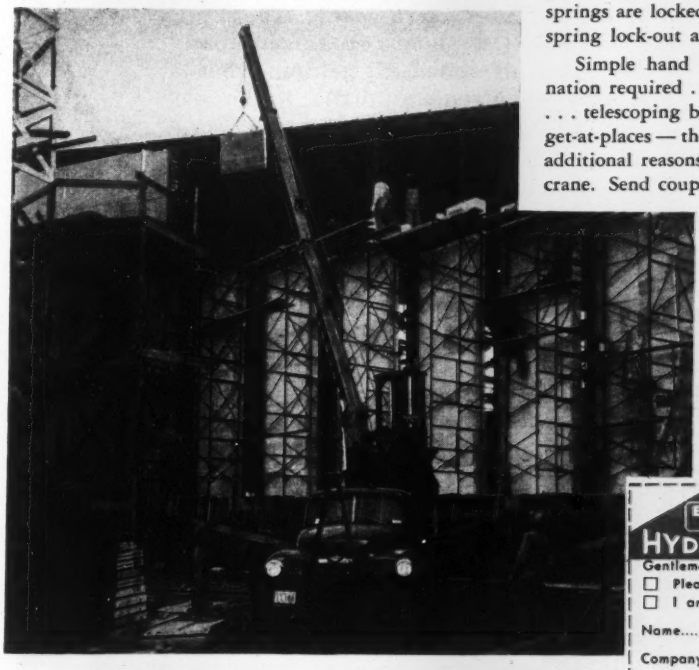
Smooth and Sure... that's Hydrocrane PRECISION CONTROL



No matter how carefully you must handle certain building materials — concrete slabs, brittle stone, plate glass windows, concrete buckets— you can handle them with confidence the smooth Hydrocrane way. With every crane function actuated by a liquid-smooth, cushion-action hydraulic system, Hydrocrane control is so precise loads can be moved a fraction of an inch if necessary. In actual tests this machine lifted, swung and set down a pyramid of six full drinking goblets (on a 1-ton steel test slab) without spilling a drop.

And to make this precision control pay off to the fullest extent, the Hydrocrane is equipped with four outriggers that extend in seconds, providing a rock-solid crane foundation. Truck springs are locked out through a semi-automatic spring lock-out assembly.

Simple hand controls, no hand-foot coordination required . . . 50 mph top highway speed . . . telescoping boom for reaching into hard-to-get-at-places — these are just a few of the many additional reasons why your best buy is Hydrocrane. Send coupon now.



Here the Hydrocrane with crane hook hoists a heavy stone slab to an upper story. Crane is available with additional money-making attachments — four hydraulically operated buckets, magnet and grapple plus the HYDROHOE— A DRAGSHOVEL FRONT-END THAT IS QUICKLY, EASILY ATTACHED IN THE FIELD. Ideal for trenching and foundation work.

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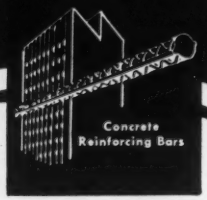

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BIRMINGHAM, ALABAMA

How dangerous is U. S. debt?

Americans owe more money than ever before. Total debt has grown by leaps and bounds since the end of World War II. Although total public debt has dropped, private debt had risen to the huge total of $277.2 billion by the end of last year—97% more than at the end of 1945. Net public and private debt together was $519.2 billion at the end of 1951.

Is this debt too large? Are business and individuals so saddled with financial obligations that they may be forced to cut back expansion and new construction in order to get money to repay them?

• **Not as bad as it looks**—There is no simple yes-or-no answer. The great volume of debt certainly could cause trouble, especially in certain parts of the economy. But it has not proved an excessive burden yet. And—except in certain lines—it's not likely to be a great burden unless the economy runs into serious trouble for some other reason. This trend, dealing with corporate debt, is the first in a series that will discuss the size of the public and private debt and the effect it may have on the economy and on construction.

Net corporate debt reached $155.8 billion at the end of 1951. That's fully 83% more than it was at the end of 1945—but only 75% more than in 1929, since debt had dropped during the depression years.

These are big figures. But the important thing is not so much the size of the debt as the burden—or potential burden—of carrying it. And the burden of debt on corporations as a group is relatively light.

One way to measure this burden is by comparing debt with current income. Corporate income before taxes in 1951 was fully 338% greater than in 1929, while debt was up only 75%. Even at their lowest postwar level, in 1946, profits were 140% greater than in 1929. So the debt is much smaller, in relation to ability to pay, than it was in 1929.

The burden is further lightened, in comparison with the late Twenties, by much lower interest charges. A recent government study shows that the interest paid by 100 manufacturing firms was only 1.4% of profits before taxes and interest in 1951; back in the late Twenties it averaged 6.5%. These same percentages will not apply to all corporations, of course; some depend more on debt financing than manufacturing firms do. But the same trends—higher profits, lower interest rates—have helped them all.

The real burden of the debt comes in the process of amortization—setting aside a certain amount of money each year to make repayment possible when bonds come due. This is a greater constant drain than it was in the Twenties, when many bond issues came due in a lump—like the mortgages of those days—with no amortization required. But the process of amortization also is much safer than lump payments since it cuts the chance of being caught with a really big payment due at a time when money may be tight.

And—as long as business stays anywhere near its present level—most corporations will be able to handle their amortization problems.

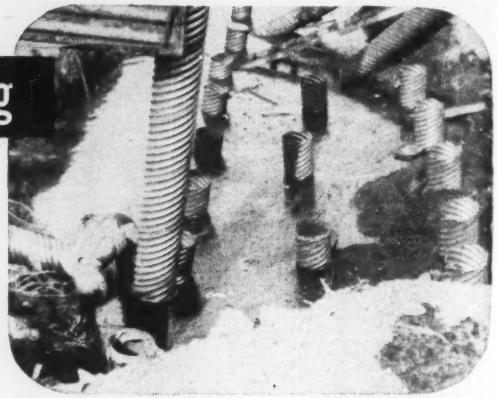
So the current debt position of U. S. corporations is, on the average, quite good by comparison with prewar years. Interest charges are small, there is a good supply of new funds from profits and other sources, and corporations today have relatively large liquid assets.

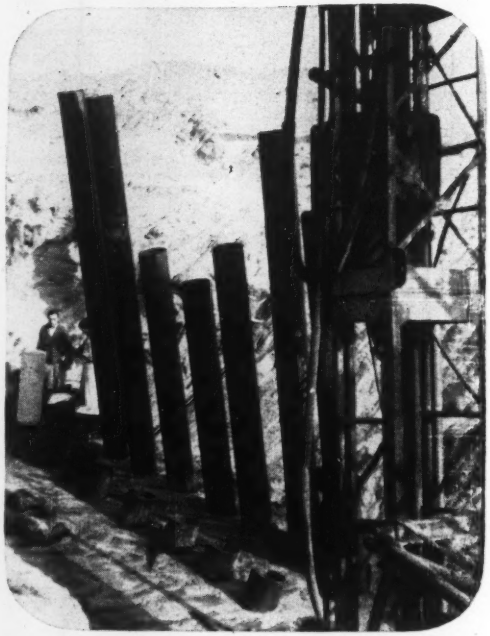
Corporate debt apparently is still far below the point at which it would constitute a serious threat to financial stability of business.

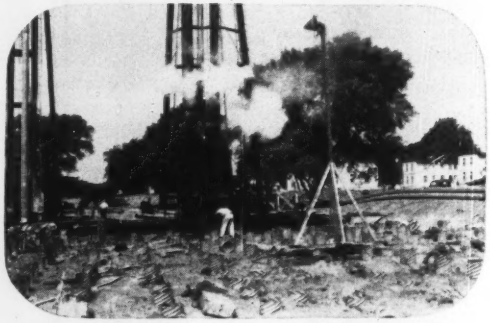
The real danger from debt would come in a recession, when profits decline and business has more trouble getting new money from other sources. And even then corporate debt at the present level probably would cause a good deal less trouble than it did in the Thirties.

Here is economical piling

for all foundation conditions







No matter what size job, loadings or soil conditions are encountered, you can select a type of Armco Foundation Pipe that will insure dependable piling with utmost economy.

The uniform properties of Armco Spiral Welded Pipe Piles assure crush-resistant, watertight piles. A constant cross-section and uniform diameter provide maximum end bearing in good strata and high bending resistance throughout the length. Exceptional roundness and straightness mean fewer rejections and fewer piles with load reductions. Equally important, Armco Piles drive straight and transmit the energy of the driving blow to the point with minimum loss. Even thinner wall piles can be driven with a simple driving head.

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For dependable, low-cost piling, specify Armco Pipe Piles or Armco HEL-COR Pile Shells on that next foundation job. Write for complete data. Armco Drainage & Metal Products, Inc., 3402 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. Export: The Armco International Corporation.

ARMCO
FOUNDATION PIPE

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• **Retreat on alternate bids**—Alternate bids for Army and Air Force buildings will receive even closer scrutiny than before under recent orders from the Office of the Chief of Engineers. Division engineers will continue to accept alternate materials and methods that save money, provided the resulting structure is equivalent to that shown on government plans. But the latest instructions to field offices are expected to cut down the number of alternate proposals that offer to reduce costs by lowering quality below government requirements.

• **"Free engineering" scored**—A showdown fight is shaping up in Florida over "free engineering services" being performed for land owners by the Soil Conservation Service of the U. S. Department of Agriculture. The West Palm Beach chapter of the Florida Society of Professional Engineers has petitioned the State society to start action to halt it. Civil engineer John T. Pickett, who says the free services are running him out of business, has launched a "fight for survival that faces all professional engineers."

His first moves: planning legal action, and petitioning Rep. Dwight Rogers to take the matter up with the Agriculture Department. Under fire are SCS services for farmers in the Lake Okeechobee region, where soil conservation, drainage and irrigation are major problems. Pickett charges SCS is advising farmers on the design and structure of pumping facilities, on the type and capacity of pumps to be installed, and is surveying for main drainage ditches and canals and designating the line, cut and slope.

• **Support for PAR**—Project Adequate Roads—which lost the powerful support of the American Road Builders Association recently (ENR Nov. 13, p. 19)—got back some equally powerful support this week.

Supporter, not unexpectedly, was the National Grange, which urged its subordinate bodies to "work closely" with all local and national PAR movements to improve the nation's highway system through bringing needs to public attention.

Grange leaders made no bones about their reasons for support—through such "close work" it may be possible for them to guide activities to some extent toward adequate farm-to-market roads, as well as superhighways.

• **Thumbs down on toll road**—Almost perfectly in line with the Grange's call for emphasis on other than super-roads was action in Iowa that seemed to knock out plans for toll highways across the state.

A state legislative committee ending a nine-month study of the toll highway proposals concluded (in a report to the governor) that toll highways couldn't pay for themselves, weren't justified. Better appropriate more money for the state's primary highway system, rather than for such ventures, committeemen said.

• **Security clamp at Savannah**—Indications that construction operations at the AEC's big Savannah River installation in South Carolina are moving fast were obvious in security regulations due to go into effect Dec. 14.

On that date, the entire 315-sq mi area will be put behind a security curtain, four main highways crossing the site will be closed, railroads will be required to cross the area non-stop and at prescribed speeds (to prevent unauthorized persons from hopping off); a new perimeter road to take traffic around the site will be opened.

• **TVA seeks support for spending**—With an eye cocked toward the incoming Congress and administration, TVA's Chairman Gordon R. Clapp used a Kiwanis luncheon at Knoxville to announce a $1-billion, five-year expansion plan.

What TVA needs, said Clapp, is support for the spending. What it plans is expansion at the rate of 750,000 kw a year to take care of what it sees as continuing needs of its area.

Vapor rises as temperatures range between freezing and zero.

LESS OVERTIME
with LEHIGH EARLY STRENGTH CEMENT

Though overtime often saves money for the contractor and ups the earnings of workers, it doesn't always pay off. Excessive overtime results in worker fatigue, reduced efficiency, slowed down production. Here's a case in point:

In the construction of the new Allentown plant of Willard Storage Battery Company, the concrete floors were being poured at below freezing temperatures. Cement finishers had to put in long hours of overtime. Progress soon slowed down.

Then the contractor changed to Lehigh Early Strength Cement for earlier hardening, much less bleeding. Result: Finishing got off to an earlier start . . . and men were off the job by 6:00 P.M.

Try Lehigh Early Strength Cement on your next winter job. It will help you speed operations, cut down overtime and curing costs.

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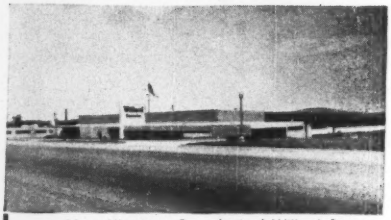

New Allentown, Pa., plant of Willard Storage Battery Company.

Owner:
WILLARD STORAGE BATTERY CO. Cleveland, Ohio

Contractor:
E. C. MACHIN, INC. Allentown, Pa.

Architect:
H. F. EVERETT & ASSOCIATES Allentown, Pa.

Ready Mixed Concrete:
THE SHEESLEY COMPANY Allentown, Pa.

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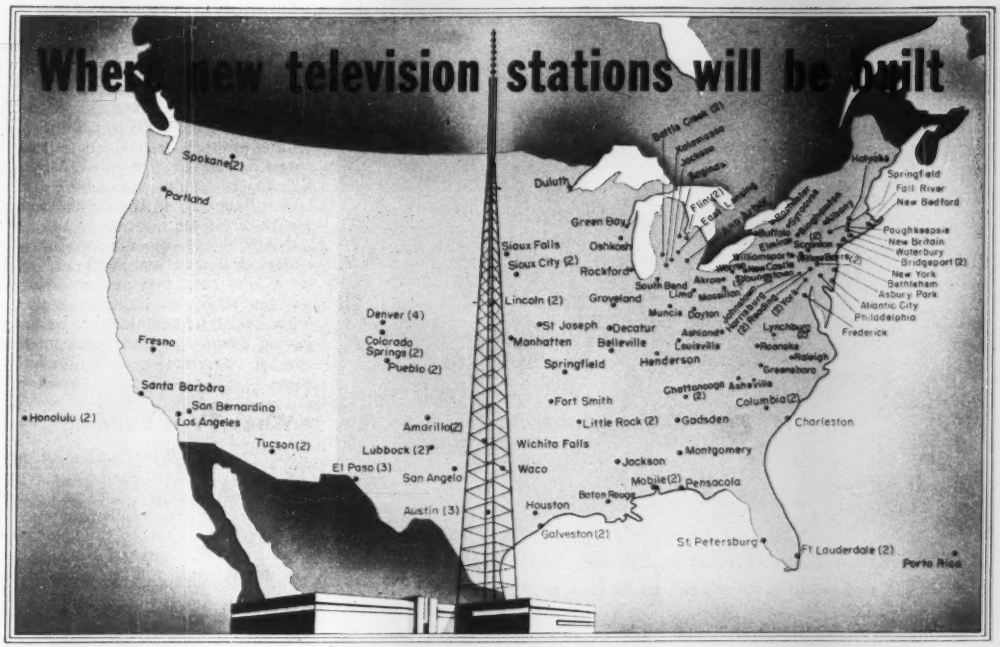


There's construction ahead for TV

Plans for new TV construction are breaking out all over—and there's some half a billion dollars worth of construction in them.

Last week Storer Broadcasting Co., owners of WJBK and WJBK-TV, announced plans for a $3.5-million television center to be built in Detroit. Construction will start next spring on a 10-story building designed by Skidmore, Owings & Merrill.

The Federal Communications Commission authorized new stations for Kit, Inc., and Cascade Broadcasting Co. in Yakima, Wash.; Television Broadcasters in Beaumont, Tex.; Northwestern Ohio Broadcasting Corp. in Lima, Ohio; and the New Jersey State Education Department in New Brunswick, N. J.

It was a busy week—but not an unusual one since the freeze came off construction of new television stations. These new authorizations raise the total to 137, covering the first 113 cities on the top-priority list set up to give first consideration to areas without television service.

Actually, station applicants for TV construction permits have been approved so quickly that even the experts are cagey at guessing as to the number of stations that may get going during the next year.

Total industry expansion could eventually run as high as $500 million if even a thousand of the potential two thousand stations are actually built. Equipment costs in a TV station outstrip construction costs by about four to one—so actual dollars spent for construction would run one-fifth of the total.

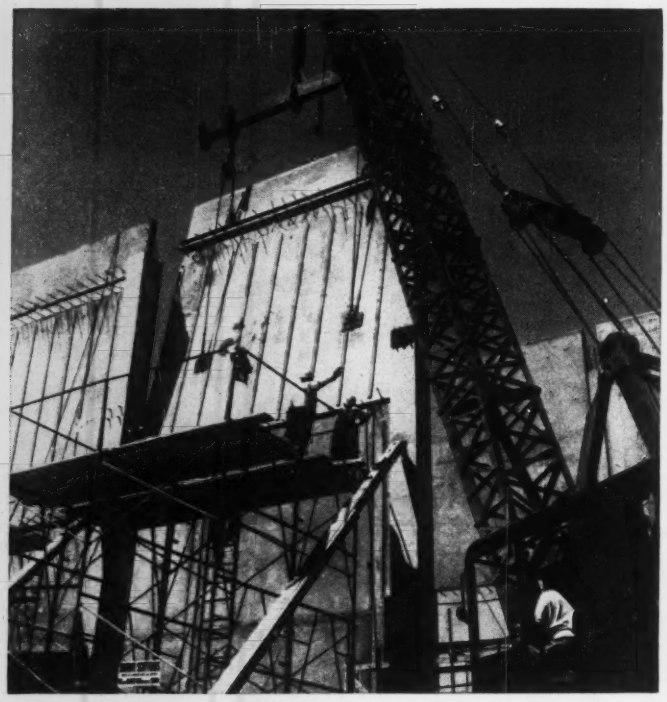
• **Lifting the flood gates**—For some three years prior to last July, Federal Communications Commission had a flat ban on any new TV stations. With the laying down of a new national TV station plan for the whole country, FCC has been speedily giving potential TV broadcasters all over the country permission to get their businesses going (see map).

Most of this construction is for building of new studio buildings or renovation of existing space to fit TV purposes. However, another chunk of construction required is the TV antenna towers—which range up to 1,000 ft in height.

Since last July, FCC has handed out construction permits—the ticket broadcasters have to get on the air—to 120 companies. It's only a guess, of course, but it's probable that all of these stations—and then some—will get their construction under way within the next year. In fact, most of them should be completed and on the air.

A broadcaster's needs will vary a lot, but one estimate is that a good-sized station in a good-sized town should have 8,000 or 10,000 sq ft of floor space—and that this costs about $14-$15 per sq ft for new studio construction.

If as many as 100 new TV stations should get under way next year, you come up with perhaps $15 million of construction for studio facilities. Then you can add to that the cost of 100 antenna towers—the other major item of construction required—



AUSTIN CO. used precast panels in a race against deadline (NBC photo).

which cost about $37,500 to $70,000 for a typical 500-ft tower. That brings the total estimated construction costs for towers at upwards of $375,000.

These figures are mainly for good-sized stations in medium-sized cities; but they indicate only the beginning.

• **Survey shows**—Not all the new TV stations are going to build new studio buildings. In fact, most of them will be using existing space in hotels or other similar buildings.

One survey of fifteen TV stations that went on the air right after the war, cited by the National Association of Radio and Television Broadcasters, shows they spent an average of $110,000 for construction or renovation of existing space. Using such figures as a guide, you come up with $11 million or more of construction business to get 100 stations on the air.

But to such an estimate you have to add the fact that many stations begin in marginal quarters, and then expand their facilities within the first year or two. Other stations get on the air by setting up studios in existing buildings which they use only until their own specially built studios are completed.

The NARTB study, prepared by Neal McNaughten, director of the association's engineering department, shows these figures for the different type of station—UHF or VHF—in different-sized cities:

	50,000 city or less	50,000 to 250,000 city
VHF		
Antenna tower	$26,500	$38,000
Building or alteration	35,000	125,000
UHF		
Antenna tower	20,000	38,000
Building or alteration	35,000	125,000

Potentially, there's room for 2,000 new TV stations in almost 1,300 communities—but it's likely to be years before even 1,000 stations get into business. For instance, 900 of the new channels are in one-station towns—that is, cities so small that the FCC figures only one station is economically possible.

The NARTB is now working up an engineering survey of the minimum construction and other costs that will be required by the smaller stations in these smaller towns.

• **Structures**—Construction of TV stations is in many ways similar to construction of radio studios. TV studios must be so designed as to isolate outside noises and vibrations and for correct acoustical qualities within the studios.

Studios must be isolated mechanically from the remainder of the building—so that cameras and microphones don't pick up noises and vibrations—if the building contains any machinery that creates such disturbances. Studio floors have to be extraordinarily smooth to carry camera dollies properly. Air ducts must be specially treated for quiet flow of air. Ducts and raceways have to be unusually ample to handle the multiplicity of circuit hookups.

NARTB recommends, that broadcasters deal with architects and engineers who have previous experience—and that studio engineers work closely with both the architect or engineer during design and the contractor during the construction of studio buildings.

• What TV is building

As plans for construction of new TV installations mount rapidly across the country, expansions are being planned at other installations already in operation. One of the biggest is planned by the National Broadcasting Co. for its new studios in Burbank, Calif.

Early in October, NBC dedicated two studios built at a cost of $3 million on a 50-acre site at Burbank. With these in operation, it is now planning a second step—construction of two more studios, more storage space and a new office building. Ultimately, a total of 24 studios is planned at the Burbank site.

For an idea of the construction this will involve, here's what the two structures just completed are:

• **What NBC has**—The two audience-type studios are 90 ft wide by 140 ft long, and 42 ft to the bottom chord of the roof trusses. This is a departure from the usual height of 20 to 30 ft. It was adopted to save time and money in the handling of scenery and sets and to allow for quick changeovers.

At the level of the bottom chord is a system of grid beams somewhat similar to that used in legitimate theaters. Scenery and lighting battens are raised and lowered by counterbalanced hoists.

Seating in each studio provides for an audience of 500. Stage space is about 90 by 100 ft and can be used as production space without audience participation. The seating banks in the remaining space are of stadium-type which give each spectator a good view of what is going on with a mini-

mum of interference from cameras and microphones.

Two types of seating banks are used. In one studio, the seats are arranged so that lower rows will overhang the stage to give a space under them 11 ft deep and 7 ft high. In this space, the cameras can operate, concealed from the audience.

In the other studio, the seat bank comes down to the stage floor, and wells or runways are provided back into the seating banks for cameras. The variations are frankly an experiment—the more desirable will be used in future studios. The seating arrangement allows space underneath to be used for storage, offices, conference rooms, and sound effects. The space over the stage can be used for storage.

• **Other facilities**—The 30-ft space between the two studios is constructed with a basement and two stories, with provision for a third story. In it are dressing rooms, chorus rooms, control rooms, rack rooms, and a light control bridge.

At the rear of the two studios and the dressing-room section is a 25-ft corridor for transportation of scenery and passage of performers and technical personnel. Behind the service corridor is a shop building 180 by 140 ft with 20-ft clearance.

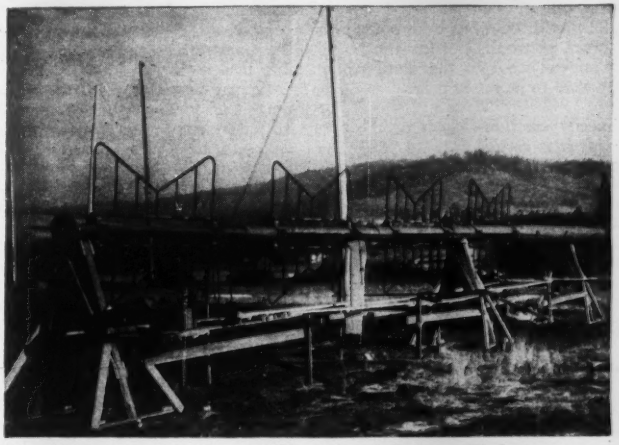
In addition to the basement under the 30-ft dressing room and control-room section, there is a basement under the service corridor extending 25 ft under the service building, giving a basement area 50 ft wide by 180 ft long, and 14 ft deep. This accommodates ventilating fans, refrigeration compressors, air compressors, transformer equipment and a machine shop.

• **How it is different**—To design and build this project for NBC and meet an Oct. 1 deadline for completion, the Austin Co. (ENR Nov. 27, p. 28) went to reinforced concrete, and used a tilt-up type of construction.

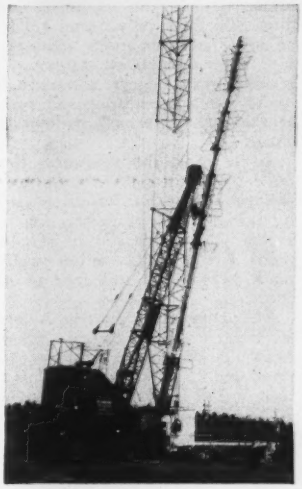
All columns for the studio are 42 ft 6 in long and were precast in a horizontal position. The walls were precast flat, either on the concrete floor slabs of the building or on plywood forms laid on the ground adjacent to their final position in the wall.

The wall sections were poured in two sections divided horizontally at approximately the halfway point of the total wall height. They were then lifted into place by special cranes and fastened. Because of the height of the studios, there was not sufficient space on the ground-floor slab to accommodate all the wall sections and it was

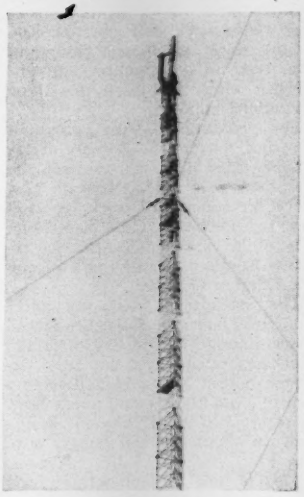
(*Continued on page 24*)



New 4½-ton top section is assembled at site of Spokane, Wash. tower . . .



Readied for hoisting and . . .



Positioned for KHQ-TV.

TV antenna has stormy career

A new chapter has been completed in the eventual life story of the 826-ft radio tower of Radio KHQ in Spokane, Wash. The top 80-ft section of the tower has been chopped off and replaced by a new 80-ft batwing type antenna. In operation, KHQ will be the most powerful television station in the United States, with 100,000 watts effective power.

Radio Towers, Inc., of Southgate Calif., handled the job—assembling the section on the ground, lowering four 20-ft sections from the top of the tower, sticking on a new cap, and hoisting the antenna intact into position. The antenna was designed and built by General Electric.

Former chapters in the tower's history include its erection in 1936 as a square, unguyed stick, rated as the tallest self-supporting radiator in the world. It was operated until the top half blew down in a gale in 1949.

A replacement tower of triangular guyed pylon type, was fabricated by International Derrick and Equipment Co., Torrance, Calif., and erected by Radio Towers as far as the 606-ft mark, when it fell, in October, 1950. The present guyed triangular pylon-type tower was finished in September, 1951.

necessary to pour some sections on top of others.

All precast columns were poured on plywood platforms outside the building and adjacent to the point where they were to be set in place.

• **Speedy erection**—Much of the precasting was carried forward while the basement and foundation work was going on. As soon as the foundations were sufficiently strong, erection of the superstructure was started.

All precast sections for the studios and service building, except for some of the front walls and inside columns left out for the installation of the steel roof structure, were erected in three weeks, ready to take the roof framing.

Here is the data on the weights of the precast sections that were lifted into place:

Precast concrete: weight of one column—12.5 tons; weight of one panel—16.5 tons; total weight of precast concrete—25 tons. Steel trusses: each 4 tons.

Because of the heavy loads, a 45-ton crane with a special bridle lifted wall sections.

Anchorages were welded to the reinforcing steel in the precast members. Welded steel lifting plates, equipped with holds for attaching clevises at the end of the lifting cables, were used.

NPA eases construction controls

The long-delayed relaxations on NPA's construction controls were announced this week, effective Jan. 1. The new order boosts the amounts of steel and copper that may be self-authorized for commercial and most other types of construction, and lifts the ban which had been placed on recreational building.

The relaxations were originally scheduled for Apr. 1. Because of the crippling steel strike this summer, the relaxations were pushed back to May 1. NPA's action this week (Amendment to Direction 8, CMP Regulation 6) is in line with the Construction Industry Advisory Committee's recommendation of Oct. 29.

The amendment does not affect aluminum, however. Drought-induced power shortages in the Columbia and Tennessee valleys have cut back aluminum output about 40 million lb a month. And there's not much hope for relief until April. Current limitations on aluminum will remain until May 1.

This is how the self-authorization allowances now stand:

1—For recreational, entertainment and amusement construction per project, per quarter: 5 tons of carbon steel (not including more than 2 tons of structural shapes) and 500 lb of copper and copper-base alloys. On May 1, this will also include 300 lb of aluminum. Previously, no self-authorization was allowed for this type of construction.

2—For highways: 25 tons of carbon steel (not to include more than 12 tons of structural) and the same amounts of copper and aluminum now permitted—500 lb each. The former steel limit was 259 tons (not to include more than 2 tons of structural).

3—For one-through-four-family houses per dwelling unit: 1,500 lb of structural steel, in addition to materials previously permitted. These include 275 lb of aluminum, 200 lb of copper, and 2,300 lb of carbon steel for homes with steel pipe water distribution systems, and 275 lb of aluminum, 400 lb of copper, and 1,950 lb of carbon steel for homes with copper pipe water distribution systems. The present extra copper allowance for forced hot water heating and radiant heating are continued without any change.

4—For multi-unit residences (walk-ups): 2 tons of carbon steel (not to include more than 500 lb of structural) and 200 lb of copper. On May 1 this will include 275 lb of aluminum. No self-authorization was formerly allowed on this type of construction.

5—For multi-unit residences (elevator type): 3 tons of carbon steel (not to include more than 600 lb of structural) and 225 lb of copper. This will include 275 lb of aluminum on May 1. No self-authorization had been permitted for this type.

6—All other construction: 25 tons of carbon and alloy steel, including structural (but not to include more than 2½ tons of alloy and no stainless) and 5,000 lb of copper. This will include 4,000 lb of aluminum on May 1.

NPA eliminated the distinction between "all other" construction and "industrial" construction—now allowing the same self-authorization quantities for both.

"All other" construction now includes these categories: industrial, commercial, public, hospital, university, school, public utility, water and sewage projects, and transportation facilities. Former self-authorization limits on these: 5 tons of carbon steel (not to include more than 2 tons of structural but no wide-flange beams or sections) and 1,000 lb of copper. The restriction on aluminum remains 2,000 lb.

Puget Sound gets bridge controversy

Selection by the Washington State Toll Bridge Authority of the Vashon Island route, for a proposed $82-million bridging of Puget Sound (ENR Dec. 4, p. 26), has brought a storm of protest from communities which believe either that the bridges should be in other locations or not be built at all.

Bainbridge Island and the north Olympic Peninsula residents would prefer the main bridge to extend directly west from Seattle to Bainbridge Island (a few miles north of Vashon). Under the plan recommended by a board of consulting engineers and accepted by the authority, Bainbridge drivers en route back to their island would have to cross first the main floating bridge to Vashon, next a suspension bridge over Colvos Passage to the Kitsap mainland and finally a third bridge over Rich Passage.

Unhappy with this circuitous route, they have requested boat service for foot passengers between their island and Seattle even after completion of the bridges.

Communities in the north Olympic Peninsula, which Seattle salesmen jokingly declare is closer to Alaska than to Seattle because of its inaccessibility, have indicated they would be content with the Vashon route if the authority were to include another bridge in the project to span Hood Canal, a saltwaterway which separates the Kitsap and Olympic Peninsulas. Such a bridge, however, would cost a minimum of $16 million.

• **Other objections**—Tacoma hasn't come right out and said it would rather Puget Sound were never bridged west of Seattle but protests that the floating bridge would hinder navigation.

At a hearing before the legislative interim Committee on Highways, the Tacoma representative suggested navigation "improvements" that would boost the bridge cost well above its present $82-million estimate and make the financing increasingly difficult.

C. S. Reynolds, representing the Tacoma Chamber of Commerce, Central Labor Council and the Port of Tacoma, proposed that the floating bridge have a 1,000-ft horizontal span with 130-ft clearance near one end and 700-ft horizontal and 50-ft vertical clearance at the other end.

C. E. Andrews, chief consulting engineer for the authority, emphasized that the engineer's report indicated the Vashon route would do the "most good and the least harm."

A bridge to Bainbridge Island would cost an estimated 20% more than to Vashon but would develop less traffic, he declared.

FPC ok's N. Y. application to build U. S. part of St. Lawrence power project

The engineering staff of the Federal Power Commission has again approved an application of New York State to construct the U. S. portion of the St. Lawrence power project.

The move came only a few days before hearings on the New York application were reopened at FPC Dec. 9. Opposition to the application was sure to come from a number of sources. Twenty-three petitions to intervene in the proceedings were granted by FPC.

FPC's engineering report was prepared by the Bureau of Power and constitutes a staff recommendation. A similar report was issued in September 1948, at the time of the original hearings on the application of the power authority of the State of New York. Following the 1948 hearing, the commission by a 4-1 vote turned down the application on the ground that the power project along with the comprehensive seaway project should be undertaken by the United States government in cooperation with the Canadian government.

When Congress this year declined to authorize federal participation in the seaway project, a Federal Court of Appeals remanded the New York application to FPC for further consideration.

• **Findings**—Major conclusions of the recent engineering report are:

• The project as proposed by the power authority would develop the power resources of the International Rapids section of the St. Lawrence River adequately.

• The project is economically feasible.

• A market exists for the power output as soon as it can be made available.

• Works proposed are compatible with the improvement of the river for navigation, in the opinion of the Chief of Engineers, U. S. Army.

• Project is best adapted to a comprehensive plan of development of the St. Lawrence River.

Major differences between the recent report and the one issued in 1948 are that cost estimates have been brought up to date and the Iroquois control dam, partly in the U. S. and partly in Canada, has been added.

• **What is included**—The N. Y. application covers only that portion of the power project which would be built in the U. S. The Canadian portion of the project is to be built by the Hydro-Electric Power Commission of Ontario. Total power installation by the two agencies is to be 1,800,000 kw, to be divided equally between them.

Total construction cost to be borne by the N. Y. power authority is estimated at $260.9 million on the basis of December 1950 prices. Annual costs based on public financing is estimated at either $13.8 million or $14.8 million, depending on whether the cost of money is figured at 3% or 3¼% annually. On this basis the cost per average year kwhr would be 2.20 mills or 2.36 mills.

By adding transmission costs, financed by private capital, FPC estimated the delivered costs per kilowatt-hour, at load centers, would be either 4.12 mills or 4.29 mills. At the same load centers, the FPC bureau estimates the minimum cost of providing the same power from steam generating plants would be 6.98 mills per kwhr.

City to grow in Arizona desert

Arizona's seventh largest city—as yet unnamed—will be built in the raw desert at the site of Magma Copper Corp.'s $121-million San Manuel copper ore body.

The model community, in which 8,000 San Manuel miners and their families will live under probably the finest conditions of any mining city in the country, will be built and owned by the Del E. Webb Construction Co., of Phoenix and Los Angeles, operating under contract with Magma.

Creation of the town results from a government contract to buy $184.5 million in copper and molybdenum from the San Manuel deposit, 45 mi northeast of Tucson in Pinal County. Approval by the Reconstruction Finance Corporation of a contract for construction of the complete community will result in the $20-million investment by the Webb firm.

Surveys are under way on 3,000 acres, and construction men will move in as soon as adequate roads are built. The townsite, which is level and covered with desert growth, is accessible now only by horse and jeep. The State of Arizona has taken a 39-mi stretch of Pinal County roads between Superior and Winkelman into its highway system in connection with the development.

The new town will be built within a mile or two of the site of a projected mill and smelter.

It will include homes, stores, streets, utilities, schools, civic buildings, parks, playgrounds, a hospital and an airport.

Webb has announced a separate $13.6-million home-building program for seven other Arizona and two California communities. A total of 1,712 home units will be built by the Webb Development Co., Inc.

Development of the mine and city will be done by Magma through the San Manuel Co., a wholly owned subsidiary, under a $94-million RFC loan, the largest made by the RFC in its 20 years (ENR July 24, p. 89). Plans for the mine site include equipping the mine itself, erecting a mill and smelter and power plant and building railroad connections. Production is scheduled for 1955.

Action on Maine Turnpike expected before yearend

A decision on whether the Maine Turnpike is to be extended northward to Augusta, a distance of about 65 miles, is expected before the end of the year. Estimates of the cost are being completed by Howard, Needles, Tammen & Bergendoff, consulting engineers to the Maine Turnpike Commission, and traffic studies are being put into final form by Coverdale & Colpitts, traffic engineers for the commission. Cost of the new work has been estimated roughly at from $55 million to $60 million.

Meanwhile, plans for financing the new work, if it is undertaken, are being made by Tripp & Co., the New York bond house that handled the financing of the original project. These plans envisage a bond issue of $75 million to $80 million. About $20 million of this would be used to refund the outstanding bonds of the original turnpike. In that way the income of the present turnpike, which now exceeds indenture requirements by 30%, will be available to assist in financing the new work.

Present plans for extending the turnpike from its present northern terminus south of Portland include a bypass around Portland and a new highway running almost due north to Auburn and Lewiston and then northeast to Augusta. The bypass around Portland will include a spur to U. S. 1, which runs northeast along the coast from Portland.

If the Maine Turnpike Commission decides to undertake the work, financing may be started in January.

It is expected that traffic on the present 44-mile turnpike will exceed 2,300,000 vehicles this year.

DISCUSSING BASIN PROBLEMS at the meeting in Omaha last week are (left to right): Gov. Norman Brunsdale of North Dakota, Brig. Gen. W. E. Potter of Omaha, and Nebraska Gov.-elect Robert J. Crosby. (Omaha World-Herald photo.)

Governors approve Missouri compact

Who will control Missouri Basin water?

This long-simmering controversy, which has often boiled over into national politics, last week moved a step closer to settlement. Governors and other representatives of the ten Missouri River Valley states approved a compact. Under it the states and the federal government would be equal partners in the land and water development projects in the 529,000-sq mi basin area.

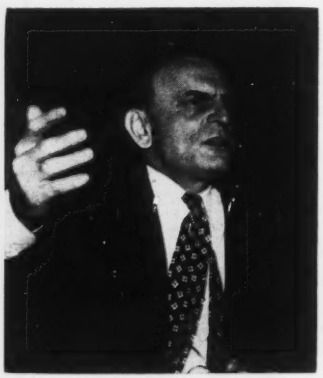
The compact will now be considered in Washington by the congressional committee involved and by the President's Office. Approval is expected. The compact appears to fit the pattern for basin development outlined by President-elect Eisenhower during his campaign, calling for more state and local participation in federal projects.

In the light of Eisenhower's policy, it will be favored over proposals for a Missouri Valley Authority similar to the TVA. It will have an edge on the commission setup recommended by President Truman's Cooke Commission (ENR Feb. 21, p. 29). Still to come are the findings of Truman's Missouri River Survey Commission.

• **How it would work**—Three years in the making, the compact was drafted by the Council of State Governments at the request of basin governors. James M. Landis, former Dean of Harvard Law School, drew up the compact document with the help of the late Judge Clifford Stone of Denver and Gov.-elect Phil Donnelly of Missouri.

The compact offers a novel governmental setup under which states and the federal government would have equal voices in planning and reviewing the valley's $15-billion oil and water resources development program now in progress.

Landis said it brings federal and state agencies into partnership for the first time, setting up "a community which will not be overridden by bureaucracy but be a government of and by its own."



JAMES M. LANDIS drew up a novel compact. (Wide World photo.)

The compact sets up a Missouri States Commission with powers to plan, review and recommend. Seven primary states would be represented with one commissioner apiece. They are Missouri, Kansas, Nebraska, the Dakotas, Montana and Wyoming. In addition Minnesota, Iowa and Colorado—with lesser areas in the basin—could belong or not as they pleased.

The federal government would have three to five commissioners. Votes would be weighted so that state and federal blocks would have equal strength. Hitherto, valley-wide coordinating has been through the Missouri Basin Inter-Agency Committee, composed of state governors and representatives of the Army Engineers, the Bureau of Reclamation and the Department of Agriculture (ENR Dec. 20, 1951, p. 104). As a voluntary group and one without legal status, it has shortcomings.

The compact commission's powers would be limited to review and planning. Construction and administration would be done through existing federal and state agencies.

It is the hope and expectation of the governors that the commission would produce fair answers to the basin's problems, and would have sufficient prestige to make them effective, without having power of enforcement.

• **Rumblings continue**—While the governors were mapping their plans to settle basin disputes, they also heard two situations get a thorough discussion.

One concerns South Dakota's controversial Oahe Dam, now under construction. The Army Engineers' Missouri River Division Chief, Brig. Gen. W. E. Potter, told them: "If you don't have Oahe, you don't have Pick-Sloan, which is the basic program for the valley at present."

Oahe is under fire from two sides. One group, headed by Roy Houck, South Dakota state legislator and rancher whose land is in danger of flooding, wants to substitute two smaller dams. Another group, backstopped by private power companies, wants to eliminate Oahe entirely.

Of the two-dam proposals, Gen. Potter said:

• Two small dams would cost $400 million as against Oahe's $300 million.

• They would flood as much land but storage capacity would be reduced from 23,000,000 to 9,000,000-acre-ft.

• Power capacity would be reduced by 25,000,000 kwh, use of Oahe's water power for irrigation would be forever lost.

With no Oahe whatever, the power

production of Fort Randall Dam would be virtually lost. Power storage space would have to be assigned to flood control, he said. This would cost $25 million.

Reviewing progress since the first Missouri River program appropriations were made seven years ago this month, Gen. Potter said that 79% of the Engineers' part of the program is under way and 39% has been completed. In 1951 and 1952 alone, completed works have prevented flood damages aggregating over $500 million, he said.

• **Yet another problem**—Gladwin E. Young of Lincoln, the Department of Agriculture's representative, said: "The agricultural interests feel that the Missouri Basin program so far has neglected seriously the watershed and upstream problems and improvements as compared with main-stream developments."

In the last seven years, $1.2 billion has been spent on controlling and using water in the Missouri and its tributaries.

In the same period of time, only $200 to $250 million has been spent for conservation resources before the water reaches the rivers, he said.

"In my judgment this ratio of expenditures cannot buy a sound land-and-water-resource program for the Missouri Basin . . . continuation of this disproportionate emphasis will result in greater lopsidedness and unbalance for the entire program."

$240-million program outlined for Alaska

When a man says he wants to spend more than $240 million for construction in a period of four months, he's certain to find an interested audience among designers, contractors, and suppliers.

That is the kind of audience Col. L. H. Foote, Alaska District Engineer of the U. S. Army Corps of Engineers, faced last week at Seattle, Wash., as he outlined the building program for 1953.

"It will be the greatest construction period in the history of the Territory of Alaska," he said. Nearly 200 projects are scheduled for award by next April (see story on page 32). The funds now available include $100 million uncontracted from 1950-52 appropriations. Last year the Engineers were able to award only 108 contracts, when the start of the construction season was delayed by labor disputes.

Col. Foote promised the 400 persons present that awards would be made more quickly after bid openings than was the case last year.

Compulsory home warranties urged after probe of GI and FHA housing

It will be up to the next Congress to decide whether a one-year warranty shall be made part of every sales contract for new houses financed by VA-guaranteed or FHA-insured mortgage loans. The Rains Subcommittee of the House Banking Committee urged the compulsory warranty this week in its final report on a year-long probe of the GI and FHA housing programs.

Bills to bind home builders to one-year guaranties are sure to come up during the first session of the 83rd Congress, convening Jan. 3. Earlier this year, in the second session of the 82nd Congress, the House approved a warranty clause in the Korean GI Bill. But the Senate Banking Committee omitted it from the version reported to the Senate, and the provision was dropped in the conference that settled the final language of P. L. 550.

Home builders in general oppose compulsory warranties but favor voluntary guaranties in their sales contracts. More than 80% of the local associations making up the 25,000-member National Association of Home Builders have adopted warranties. There is nothing compulsory about writing them into sales contracts, but competition forces all builders to comply as soon as one builder starts advertising that he gives a warranty. NAHB predicts nationwide adoption by Feb. 1. Members build 75% of the houses in 203 areas where NAHB has local associations.

• **More criticism**—On another critical point, the Rains Committee urged VA to do away with the fee system of paying appraisers and inspectors and to hire salaried personnel instead, as FHA does. There are obstacles to carrying out that idea, VA Administrator Carl R. Gray pointed out. The agency has neither the manpower nor the money to put the suggestion into effect. Buyers of the houses now pay the cost of the appraisal and inspection fees.

VA now employs nearly 3,000 salaried people at headquarters and in 67 regional offices that give loan guaranty service. In addition it has about 8,000 fee appraisers and inspectors on its list of qualified personnel.

These local appraisers and building construction inspectors, VA officials think, are probably more competent than a salaried employee from a regional office could hope to be. Washington headquarters has been scrutinizing the lists carefully in recent months and has sent special supervisory teams around the country to see that the fee personnel were doing their jobs properly. Training of the appraisers and inspectors has also been intensified.

The fee system is cheaper than salaried people in handling a fluctuating load, VA points out. Inspections by a field office can easily triple in one year. To build up a salaried staff, the agency would have to ask Congress for the necessary money more than a year in advance. The VA load in any region cannot be predicted that far ahead.

• **Looking ahead**—Other recommendations by the committee are being carefully studied by VA and FHA. The suggestions include:

• Strengthening of standards and procedures on land planning, with requirement of reports from qualified professional people that site-development plans are adequate.

• Studying the possibility on a bonding, escrow or government insurance device to protect home buyers against builders who dissolve their corporations or go bankrupt. For the last two years, VA has had escrow protection on exterior work (grading, sodding, etc.) not completed when a buyer takes occupancy. The NAHB also has a bonded-builder program to protect the buyer on his down payment. This deposit, of course, is covered by statute.

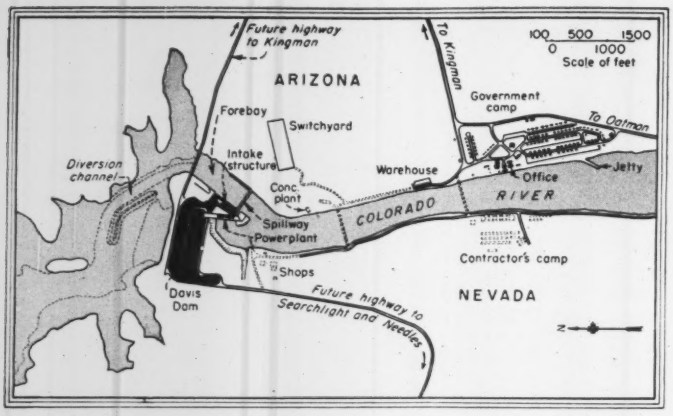
• Refusing commitments to builders who have sold defective houses or fallen down on contractual obligations.

• Bringing local building codes up to date by writing performance standards into them and eliminating unnecessarily restrictive construction requirements. But on site planning, the committee said, present building codes often are not as restrictive as they ought to be.

Decline in construction is less than seasonal

Monthly spending on new construction totaled nearly $2.8 billion in November, a 7% decline from October, according to joint estimates of the Labor Department's Bureau of Labor Statistics and the Building Materials Division of the Department of Commerce.

All classes of construction activity except commercial building moved downward from October, but the declines were less than seasonal in most major types of work. Public construction dropped proportionately more than private during November because of a $100-million decline in highway work, which lagged slightly more than it usually does at this time of year.



Dam dedicated on the Colorado River

Davis Dam, a $119-million power and water control structure on the Colorado River, was dedicated with suitable ceremonies on Dec. 10. It was the only Bureau of Reclamation dam that had not yet been officially dedicated.

Interior Secretary-designate Douglas McKay was unable to attend the dedication. He and other members of the new Republican Cabinet met this week with President-elect Eisenhower aboard the U.S.S. Helena where it was expected that top-level decisions concerning resource development policies of the new administration would be made.

Main dedication speaker was outgoing Reclamation Commissioner M. W. Straus. At the recent National Reclamation Association meeting in Long Beach, Straus indicated that his bureau favored more local-government jurisdiction over Reclamation projects.

That will be almost impossible at Davis Dam because of the water-control functions of the project—the main justification for its construction. The dam serves as a king-sized afterbay dam for Hoover Dam, re-regulating the flow of the Colorado River to assure delivery of water to Mexico in accord with terms of a treaty signed in 1945.

The 225,000-kw powerhouse, the fourth largest built by the USBR, made the project financially feasible because it is the sole source of repayment revenue.

Water storage in the 67-mile long Davis Dam reservoir, Lake Mohave, began in January, 1950. The first of the power plant's five 45,000-kw units went into operation a year later and all were on the line by June 17, 1951. During the first full year of operation, the power plant generated more than a billion kwhr of energy which amounts to one-sixth that produced at Hoover Dam.

• **Construction delays**—Construction of the project was hindered by two noteworthy delays. A contract, awarded in mid-1942, was canceled in November of that year because the job was incompatible with the World War II effort of the U. S. After the war, Davis Dam understandably was one of the first USBR jobs to get under way. Contractor for both the 1942 and 1946 contracts was Utah Construction Co. But during the construction weaker-than-anticipated rock conditions were encountered in the powerhouse foundations (ENR June 12, p. 114). This brought construction to a virtual standstill for several months while design alterations were made.

Utah's $21-million contract (increased by negotiation because of design changes) was the largest single contract on the job. But there were many others for penstocks, turbines, generators, permanent camps and powerhouse, bringing the project cost to more than $100 million.

Three contracts are still under way. Two small ones are for architectural finish and minor powerhouse installations. A third for $2,731,882 covers work on the stilling basin not included in the main construction contract. According to USBR officials, this was awarded later because design studies had not been completed when the major contract was let. The work being done by Grafe-Callahan Construction Co. centers around a 88x246-ft reinforced-concrete stilling basin. It includes 27,000 cu yd of concrete work. While construction is under way, the entire flow of the river as controlled at Hoover Dam is diverted through the Davis Dam powerhouse. The job will be finished next spring.

Davis is a 3,800,000-cu yd earth-and-rock-fill dam. But beside the fill work, there were other features that warranted article coverage in ENGINEERING NEWS-RECORD. Most noteworthy among those details was first USBR use of a siliceous admixture in the spillway and intake structure concrete to control destructive reaction between cement alkalies and reactive aggregates. The admixture used was a calcined shale having more desirable qualities than some other pozzolanic materials.

The complete list of major ENR articles on Davis Dam follows:

Davis Dam scheduled for 1949 completion—ENR Aug. 22, 1946, vol. p. 230.

Davis Dam structures revised to cope with bad rock conditions—ENR June 12, 1947, vol. p. 948.

Shade-shed for cool aggregate—ENR Oct. 12, 1947, vol. p. 449.

Rock fill diverts river at Davis Dam—ENR Aug. 5, 1948, p. 70.

Admixture combats alkali reaction in Davis Dam concrete—

Part I, mixing and placing—ENR Jan. 20, 1949, p. 83;

Part II, Siliceous admixture selection—ENR Feb. 3, 1949, p. 62.

Davis Dam fill made in record time—ENR July 14, 1949, p. 32.

Installing Davis Dam piezometers—ENR July 14, 1949, p. 35.

Record-size expansion joints for dam's penstocks—ENR Apr. 27, 1950, p. 35.

NPA approves water, sewerage projects

The National Production Authority disclosed last week that it approved 703 water and sewage construction projects in the third quarter of this year. These included 450 waterworks projects, valued at $215.5 million, and 253 sewage projects, valued at $127.5 million. The estimates included costs of all materials, labor and engineering services.

Previous approvals this year included 700 waterworks projects in the first quarter and 724 in the second quarter, and 597 sewage projects in the first quarter and 308 in the second quarter.

Dollarwise, New York led the third quarter list with 35 projects approved, worth $86.8 million. California had 116 projects approved, with an estimated aggregate cost of $41.5 million. Michigan ranked second in dollar volume with $55.3 million for 37 approved projects.

Labor Secretary Martin P. Durkin gets construction industry backing

The first Martin P. Durkin knew he was being considered for Secretary of Labor was about two o'clock Friday afternoon, Nov. 28, three days before the announcement. Durkin saw Gen. Eisenhower in New York City that evening and was offered the post. Durkin explained that he was a Democrat, had supported Stevenson. They did not discuss Taft-Hartley or any other details of the Labor Department.

Durkin was surprised to get the appointment, insists he does not know who suggested his name. George Meany, new AFL president, saw Eisenhower just a week before, on Nov. 21, a few hours before William Green died, suggested that he pick a man from organized labor.

Richard J. Gray, head of the AFL Construction Trades Department and Durkin probably were among those whose names Meany gave to Eisenhower.

It was a big week for the 225,000 members of the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, official name of Durkin's union. Meany is a member of the same union.

Durkin is taking leave from his $20,000 job. His duties will be taken over by the first vice-president, Peter T. Schoemann of Milwaukee, president of the Milwaukee Building Trades Council, who has been made "assistant to the president," a newly-created post.

• **Career**—Durkin has lived in Washington since he became president of the union in 1943, served on the National War Labor Board.

Born in Chicago, Durkin (58 years old) has been a plumber since 17; studied in evening technical schools. He served in World War I, was union local business agent for 12 years until 1933, when he became director of the Illinois Department of Labor. He was in that post until the Republicans came in in 1941. In that post, Durkin incurred the wrath of the CIO when he ruled that 20,000 members of the United Mine Workers were not entitled to unemployment compensation because they left their jobs during contract negotiations. UMW was in the CIO then.

Reaction to Durkin's appointment was mixed. Taft, who will be chairman of the Senate Labor Committee, condemned it as "incredible," and an affront to union members who voted for Eisenhower. Durkin now thinks Taft-Hartley can be amended to the satisfaction of both labor and management.

Except for the construction industry, management organizations joined in criticizing the appointment. The main complaint is that the Labor Department has been setting wages which must be paid for work on government contracts at levels higher than the actual wages paid in the locality. Congress, this year, made Walsh-Healey rates, covering manufacturing, subject to judicial review. Congress may do the same for Davis-Bacon rates, covering construction.

Durkin's appointment was hailed by fellow AFL leaders and by the National Association of Master Plumbers, with whose members Durkin's union deals. The Associated General Contractors sent a congratulatory telegram, quipped: "At least he knows construction."

• **Independent**—Durkin has had his own differences with the AFL building trades unions. He insisted on using the Taft-Hartley law to win certified bargaining rights for his plumbers and to win the union shop. The Building Trades Department and eight other building trades unions fought this before NLRB, trying to prevent a certification election among Baltimore plumbers last year. They feared it would upset the working of the jurisdictional disputes board in the construction industry.

The plumbers union has also given notice of withdrawing from the jurisdictional disputes joint board when its previous commitment runs out on March 31.

It is dissatisfied over the procedure under which spot decisions on project disputes are made in Washington. Durkin believes they are more effective if made at the local level—they would be made quicker, thus reducing lost work time, and would be better accepted by the area workers. But a committee has been set up to recommend changes in the procedure, so that the plumbers may not withdraw after all.

Ledbetter decision

The Ledbetter Construction Co., Montgomery, Ala., won out in its fight with the Montgomery AFL Building Trades Council (ENR Nov. 20, p. 31). A Supreme Court decision, handed down this week, refused to upset a temporary injunction Ledbetter obtained under the Taft-Hartley act from an Alabama state court.

The AFL, CIO and the National Labor Relations Board had asked the court to reverse the Alabama Supreme Court on the grounds that Taft-Hartley requires injunctive proceedings to pass through NLRB to federal courts, and does not permit private suits in state courts for such relief.

The 5-2 decision said since the Alabama injunction was only temporary—thus not a final decision—the Supreme Court had no jurisdiction to consider it.

Industry members of CISC await WSB case action

Contractor representatives on the Construction Industry Stabilization Commission gave no indication Monday of resigning, as the industry members of CISC's parent agency, the Wage Stabilization Board, did over the weekend.

They attended CISC's regular meeting and joined in a decision to find out from WSB Tuesday what will happen to about a dozen CISC decisions which need WSB approval and were sent to WSB a few days ago. These are cases in which CISC has approved increases for on-site mechanics in excess of the 10-percent-plus-15-cents wage formula or the 7.5-cent ceiling on health and welfare fund contributions.

CISC has another 400 applications pending, most of them within the wage formulas. It will be able to act on these.

Since WSB is only an advisory group to the Economic Stabilization Agency, headed by Roger L. Putnam, an easy and quick way to dispose of the CISC cases at WSB would be for ESA to act on them. ESA may have to take over, anyhow, for all wage controls if Putnam is unable to woo other employer representatives to take the place of the seven who resigned following Archibald Cox, in protest over President Truman's approval of $1.90 daily wage increase for soft coal miners. WSB had approved a raise of only $1.50.

Union fights own members in court as Paducah labor troubles continue

With state courts already considering lawsuits that involve the general contractor and bitterly contending factions within the same union, constant labor troubles at the Atomic Energy Commission's plant at Paducah, Ky., seemed to be heading for some kind of a showdown last week.

Almost two years have passed since construction started at Paducah (for uranium-separation facilities)—and since then, many other manufacturing plants have moved into the area, bringing fresh construction activity. The two-year record is one of almost constant labor trouble, millions of lost man-hours and wages, and setbacks to the national defense effort.

Last week, here was the situation:

A rebel faction of the International Union of Operating Engineers was before the state courts, suing the parent union for $3.25 million in damages; individual members of IUOE were before other courts, suing the contractor—F. H. McGraw Co., of Hartford Conn.—on the ground of discrimination against them over which faction of the union they supported. And all IUOE members had left the job—about the 60th time such a stoppage has occurred—for one day, in what they carefully insisted was not a strike but a mass exodus to "answer the summons" issued by the Kentucky court.

I. Rebel union vs regulars

The bitter intra-union struggle, fought within the ranks of the IUOE, pits the union organization against an embittered and rebellious minority of about 700 members. These rebels are mostly western Kentuckians who found that in order to get jobs in the Paducah area they had to join IUOE Local 181 of Evansville, Ind.

First gun in the intra-union fight was fired in mid-February of this year when the rebels induced the Kentucky legislature to pass a law requiring IUOE (and all other unions) to charter a local in the state (ENR July 3, p. 49). The rebels' next move was to form an organization and demand a charter from the IUOE.

Two days earlier, IUOE had warned: "Members who attend rump meetings are in violation of the international constitution and subject to provisions set out in the constitution."

This didn't stop the rebels. They formed a new organization—the Operating Engineers of Kentucky for Local Autonomy.

The IUOE failed to grant a local charter to the new group, whereupon a Kentucky Grand Jury indicted the union for failure to comply with the state law.

Then—according to the rebels—many operating engineers indentified with the rebellion were laid off, the contractors telling them that it was a "force reduction" move.

• **Lawsuits and countersuits**—The rebels did not take the so-called purge lying down. They filed a $3.25-million damage suit against the IUOE. In addition, individual members have filed personal suits against the IUOE and F. H. McGraw Co. It was in answer to Kentucky's suit against the IUOE that the loyal operating engineers left the job last week "to answer the summons."

Here are some of the union policies to which the rebels object.

Evidence of the lack of democracy in the union's affairs has been offered in the form of the ballot for national officers used at last year's IUOE general convention. The ballot listed only one nominee for each major office.

Other sworn evidence shows this union schedule of fees and assessment: A new man in the union is either taken in as a regular member or sold a work permit—the badge of temporary membership. Regular memberships cost $53.50 in advance, plus $4 a month dues, plus $4 yearly for membership in the AFL Building and Construction Trades Council. Of the $4 AFL fee, only $2 goes to the trades council; the IUOE Local 181 gets the other $2. This nets the Evansville local about $4,000 a year.

"Work permits" cost $2.50 a week, plus the regular $4 monthly dues. This adds up to about $178 a year. The union apparently encourages the "work permit" kind of membership because many operating engineers stated they have been paying for "work permits" for nearly two years.

Perhaps the most costly practice of Local 181 is the reinstatement procedure. If a member of the union withdraws from the union temporarily he must pay a reinstatement fee in order to get back in. This fee consists of all the back dues accumulated during his absence, plus a $25 fine, plus three months dues in advance.

Company statement

F. H. McGraw & Co. officials expressed the greatest confidence that the present harmonious relations between labor and management of the gaseous diffusion plant would continue. They pointed out that there has not been an authorized walkout on the A-plant project since Aug. 29, and that agreements made early in October between management and the unions have been observed conscientiously. The company lauded the unions for the fine spirit of cooperation which they have displayed since the Atomic Energy Labor Relations Panel (Davis Panel) conducted hearings at the project early this fall and subsequently negotiated the present agreements between company and unions.

F. J. Mayo, McGraw vice-president and project manager at Paducah, stated that the company has not discriminated against any members of the IUOE at any time and does not intend to allow any such discrimination during the course of the job. He said further that the company is maintaining a policy of strict neutrality in connection with any intra-union disputes.

II. Background for trouble

There is a record of 117 work stoppages in the Paducah area since January 1951. These strikes may have set back seriously the whole industrial future of the area.

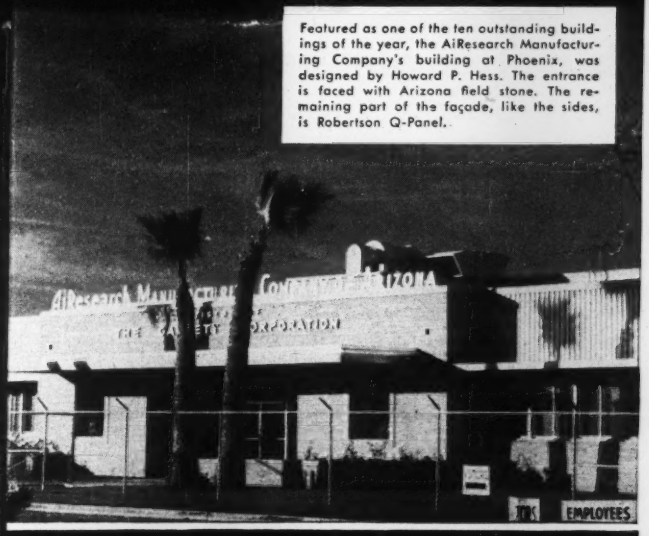
Right now the labor situation in the area is relatively quiet. Except for the "summons" walk-off by the operating engineers and a two-hour walkout by carpenters on the $100-million TVA steampower plant project at nearby Joppa, Ill., last week, there hasn't been a full-fledged strike since Oct. 23.

The October walkout was by 20 members of the IUOE who walked off the TVA steam-plant project in protest against the firing of a job steward who had punched a TVA foreman in the nose.

• **Strike causes**—Only two of the 59 strikes at the A-plant itself have been caused by disputes over wages and working conditions. Jurisdictional disputes were at the bottom of most of them.

Wages are extremely high due to overtime and a 50-hour work week. It is not unusual for workers to draw $8,000 to $12,000 a year.

Working conditions are considered favorable by the workers.



Featured as one of the ten outstanding buildings of the year, the AiResearch Manufacturing Company's building at Phoenix, was designed by Howard P. Hess. The entrance is faced with Arizona field stone. The remaining part of the façade, like the sides, is Robertson Q-Panel.

Uncertainty is now a part of Foresighted Design

Air view shows how expansion was achieved. Q-Panel walls were moved to new positions. The plant anticipates repeating the expansion which will entail a third move for the Q-Panels. Structural steelwork (outlined) shows expansion in progress beside building recently completed.

The AiResearch plant in Arizona is a perfect example of foresighted design at work. A few months after completion of the original unit of 100,000 sq. ft. area, an additional 54,000 sq. ft. was needed. Farsighted Architect Hess took this in stride . . . for it was necessary only to remove the Q-Panel walls, extend the steel frame, and put back the original walls with the necessary amount of new material to complete the job.

Q-Panel walls enable any owner and architect to build for the present with the future in mind. Although easily moved to new locations, Q-Panel walls are at the same time permanent construction, with insulation value, construction speed, and architectural appearance that recommend them for industrial, commercial, and institutional buildings of every description.

From coast to coast, Q-Panel buildings stand as monuments to farsighted architectural design and industrial management.

Q-PANEL Quick Facts

MATERIALS—Metallic-coated Steel, Galbestos, stainless steel, aluminum on one or both sides. Other materials on special order.

SIZE—2'-0" standard modular width. Lengths up to 25'-0", depending on material used.

WEIGHT—Varies with metals selected but averages 4½ lbs. per square foot.

INSULATION VALUE—Superior to 12" of masonry with furred plaster. U-Factor—.14 B.T.U. in aluminum —.18 B.T.U. in steel.

STRENGTH—Great strength permits widest spacing of horizontal supports to meet the required wind load, thereby saving structural steel.

Architect—
Howard P. Hess, Los Angeles
Engineer—
Donald Douglass

(Right)

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World-Wide Building Service

How the construction business goes in Alaska

Robert H. Dodds
Associate Editor

STEAM POINTS, pipes that have combination steam nozzles and driving bits on their lower ends, burrow downward to thaw frozen ground on which foundations must be built at Fairbanks. The permafrost problem isn't as bad as it's reputed to be—at least at the big bases.

ANCHORAGE, ALASKA, is the nerve-center of a sustained construction program that is not only strengthening North America's defense, but also is hastening the territory's economic development.

Headquarters for $240-million worth of contracts in force on the mainland during 1952 is the Alaska District office of the U. S. Corps of Engineers, in Anchorage. (The Navy's Bureau of Yards and Docks handles most offshore work.) The district office works through regular residencies at Anchorage, Fairbanks and Whittier, and through temporary residencies at a number of other locations.

Principal installations at Anchorage are Fort Richardson and Elmendorf Air Force Base. At Fairbanks is Ladd AFB, and 25 miles southeast is Eielson AFB. Whittier is a government seaport.

Four years ago the district launched a lump-sum contract program that has attracted many contractors and thousands of construction workers to the territory. A substantial portion of both contractors and workmen plan to stay, establishing a sound construction industry that will do its part in pushing back the frontiers of Alaska's mineral, forest and agricultural resources.

Defense work in Alaska did not begin until only four years ago, to be sure. Before that, extending back through the early war years of airbase and Alcan highway construction, contract work was on a cost-plus-fixed-fee basis. It had to be because of the rush and uncertainties of doing business outside the 48 states. But in 1948, Army Engineers thought they could reduce the uncertainties enough to get reasonable lump-sum bids on their projects, which during several years would complete a change-over from temporary to permanent defense facilities.

By now, construction conditions have improved so much that some of the original measures for reducing uncertainties and attracting reasonable competition have lost their significance.

Construction machinery, for instance, was made available in Alaska to the original lump-sum contractors. Machines were rented out of yards that held the government-owned equipment left over from CPFF work. At first, lump-sum contractors made extensive use of this rental opportunity, but as they got more Alaskan work, and as machines wore out they began to bring their own equipment. Today there are Alaskan dealers in many lines, and there is lively trading among the contractors. Government-owned equipment, although still theoretically available, has just about disappeared from the picture.

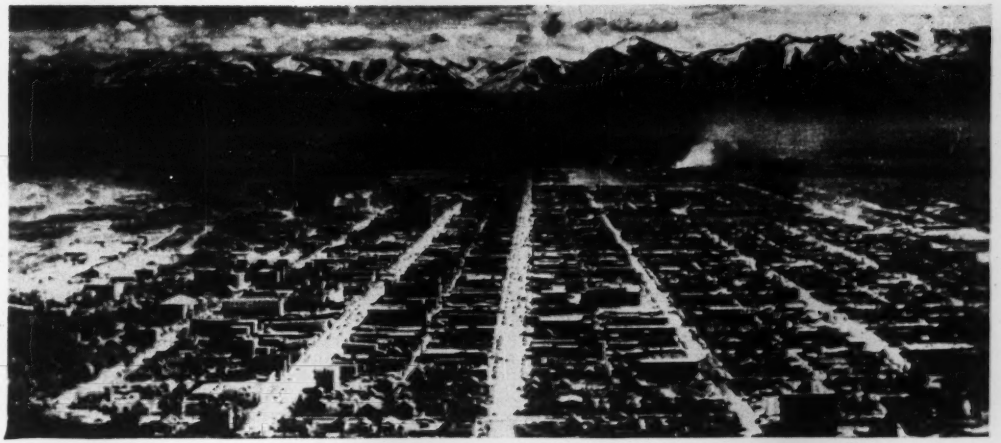
• A selling job—Attracting competition for lump-sum work did not consist of merely sitting back in the Alaska District office and announcing a few inducements via bid advertisements in the Stateside press.

In 1948 and again in 1949 a team that included the District Engineer went to the States and talked to groups of interested contractors. They held meetings in Seattle, Omaha, Boston, Chicago and New York in 1948. In 1949 they went to Seattle again, then to San Francisco, Los Angeles and Dallas. They described the following years' programs, cited their measures for reducing uncertainties, and dissipated a few myths about the difficulty of building in Alaska.

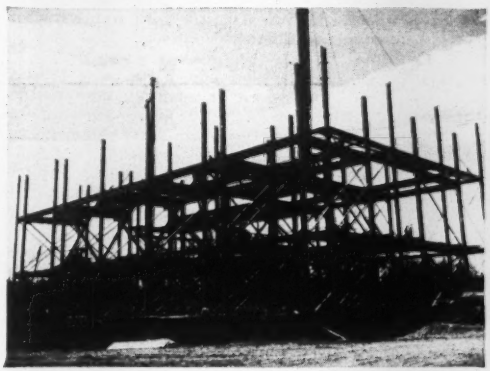
In addition to making the work attractive from the standpoint of equipment availability, the Alaska District eliminated the contractors' worry about worker subsistence, supply of concrete and of some other materials, such as reinforcing steel, plumbing and electrical supplies. The other materials, however, ran out early in 1950, so it is some time since they have been part of the inducement factor.

Camps at which men could live for a guaranteed cost were available at Anchorage and Fairbanks worksites, and concrete was to be supplied at fixed prices at the two locations. Since most work was to take place there, most bidders would be able to nail down important factors in estimating.

• Camp use declines—The construction camps were set up by commissary



CONSTRUCTION TOWN—Anchorage, Alaska, has a trading-area population of 40,000. Its boom-town atmosphere stems from the large volume of construction in the vicinity, rather than from the mining activity that spurred earlier rushes in the territory.



STRUCTURAL STEEL is used in a few types of buildings, where other advantages compensate the expense and delay-risk of shipping steel from the States. Contractor on this power plant at Fort Richardson is Patti-MacDonald Const. Co., St. Louis, Mo.

CONCRETE SUPPLY—The government furnishes concrete at a guaranteed price to contractors working in the Anchorage and Fairbanks areas. This is one of several contract provisions designed to reduce the uncertainties of doing lump-sum business in Alaska.

contractors on a cost-plus-fixed-fee basis—the only significant remnant of CPFF practices in Alaskan defense work. Then the government protected itself by requiring lump-sum contractors to guarantee a certain amount of business to the camps. Today 3% of a contract's amount is guaranteed. Recently the percentage was six. The men pay $5.75 a day.

Because of rapidly-expanding civilian facilities, particularly in Anchorage, the proportion of men using the camps has declined lately and, according to Larry Moore, manager of the Associated General Contractors of Alaska, the camp-business guarantee has become a risk item in bids.

Living costs, however, are high in the cities so workmen who don't use the camps pay dearly when they dwell outside. The number of workmen who remain in Alaska all winter has increased from season to season. This is due partly to the fact that increasingly contractors have been able to enclose buildings before November and perform indoor construction operations during the winter. Last winter about 40% of the summer force was employed. The 1952 summer peak of employment on U. S. Engineer jobs was about 7,500.

Other workmen found employment on civilian work last winter. Nevertheless, the bulk of Alaskan construction labor still comes from the U. S. for each of the outdoor construction seasons.

At first men were recruited at home, their transportation paid by the contractor. This practice has continued, particularly in the skilled trades. But the spring of 1952 saw an influx of men who wanted to be on hand for the season's work. They came as early as February, long before contractors began hiring. (Some contracts were manned by local people through June.) Many of the in-migrants had little money with them and quickly became needy of public relief.

• **10,000 needed in '53**—The word got back to the States that there was an excess of labor in Alaska, so that for a while both contractors and Army engineers feared that 1952 jobs would be undermanned. The fear that last year's experience has given Alaska work a black eye with workers still is expressed by some, particularly because the amount of work to be done in 1953 is greater than that of 1952. A possible peak force of 10,000 is seen for 1953.

High wages are the best-known lure of Alaskan work. Common laborers get a minimum of $2.94 an hour.

Plasterers and operators of large shovels get $4.07. Carpenters: $3.34.

Mr. Moore, who worked on agreements with AFL unions, points out that most of the rates actually are comparable with those paid in major U. S. cities. Added inducements are substantial amounts of overtime in the long days of the northern summer, (some jobs work two ten-hour shifts, all in daylight, in June and July) and the opportunity to save a substantial portion of the pay.

A man does not have to save his money, however. The main street of Anchorage is a blazing streak of neon signs, most of them on bars that sell their beer as dearly as they sell their whiskey. (It costs money to ship beer to Alaska.)

Transportation plays a major role in the high price of doing construction business in Alaska. Not only does it take extra money to carry machines, men and materials to worksites; it calls for careful advance planning, long lead-time for Stateside purchasing, and a bit of luck in coordinating the rail, water and truck supply lines.

• **Central concrete supply**—An important material that must be transported to Alaska is cement. In its original program for getting lump-sum work into the territory the government sought to eliminate the cement-delivery uncertainty from bidders' operations. Contracts were let to central-mix concrete suppliers who set up plants at Anchorage and Fairbanks. The Fairbanks supplier built plants at both Ladd AFB and Eielson AFB. Delivery to job sites is mostly by non-agitating dump trucks. Concrete supply contracts are on a two-year basis—at Anchorage one year and at Fairbanks the next year.

Once a concrete supplier gets on the job he doesn't necessarily get the next contract there. The last time the Anchorage contract came up for renewal there were four bidders, one of whom underbid the incumbent.

An advantage of having one supplier is that he can order his cement as soon as individual-contract designs are complete; and he can take advantage of large-quantity purchasing economies. This arrangement also saves individual contractors the expense and uncertainty of bringing in concrete equipment (and perhaps aggregate-producing machines).

Recently a cement manufacturer installed facilities for receiving, storing and marketing bulk cement. This move is said to have reduced the cost of cement by more than $2.00 a barrel, making it $8.00 a barrel in Anchorage and $11.00 a barrel in Fairbanks.

Concrete suppliers have little difficulty with aggregates. At both Anchorage and Fairbanks there is abundant natural gravel and sand.

The concrete suppliers delivered 75,000 cu yd this year and 90,000 cu yd last year. There are commercial suppliers, for civilian business, too. Two ready-mix plants in Anchorage are said to have delivered 40,000 cu yd this year. One plant in Fairbanks has sold 16,000 cu yd—the biggest volume yet at the inland center.

• **Commercial suppliers**—Another significant material item in Alaskan construction, both military and civilian, is the concrete block. Contractors on defense work buy their block from well-established block suppliers at Anchorage and Fairbanks. These centers also have heavy-equipment repair shops, oxygen and acetylene plants, asphalt vendors, electrical-supply houses, and other regular commercial facilities.

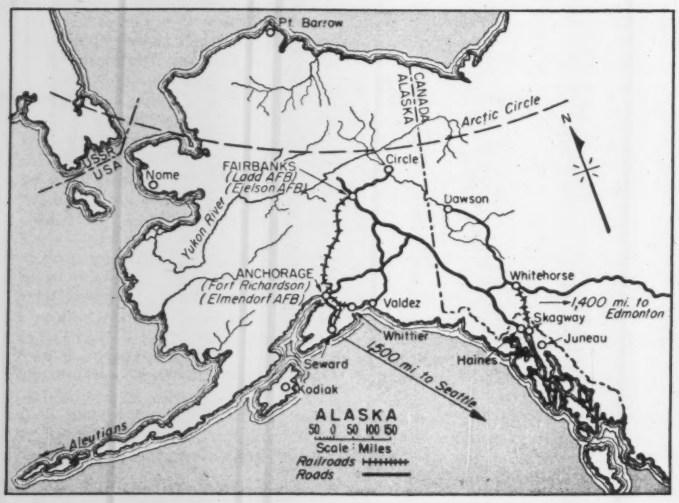
Structural steel is used where necessary. Notable examples are power plants and long-span structures like gymnasiums and big hangars. One new hangar, at Eielson AFB has a 300-ft span, framed with trussed three-hinged arches. Steel construction in 1952 was spared most of the mid-year steel strike delays because the materials were ordered and shipped early, but a West-Coast longshoreman's strike slowed delivery of some critical items—both structural steel and installed equipment. One ship was tied up at Seattle with shipments for 27 different contracts.

• **Transportation**—Ships go to Seward or Valdez, transferring cargo to the Alaska Railroad (at Seward) or to motor freight carriers for shipments to Anchorage and Fairbanks. (Anchorage is not a regular seaport.) Freight rates on construction equipment run about $53 a ton from Seattle to Anchorage; $55 a ton from Seattle to Fairbanks. Air cargo costs $300 a ton from Seattle to Anchorage; $340 to Fairbanks. Motor freight from Great Falls, Mont., via the Alcan Highway to Fairbanks costs $170 a ton; $181 to Anchorage.

Generally the contractor assumes the full responsibility for transportation. But in unusual cases he gets a high type of cooperation from the U.S. Engineers, and the Air Force.

This fall an electrical manufacturer was unable to complete some switch gear for power plants at Fort Richardson and Eielson AFB until the end of October. Normal transportation would have taken a minimum of 30 days, and there were no commercial aircraft big enough to handle the items. So the Air Force provided two of its latest type "Flying Boxcars," each of which is able to carry a 30,000-lb load. Picking up the switchgear in Pittsburgh Oct. 28, the big planes delivered their loads the 30th. Plants at both Eielson and Fort Richardson were making power by Dec. 1. The U.S. Engineers took contract credits for the amounts the contractors would have paid for regular freighting.

• **The cost of work**—The cost of transportation and of the winter shut-down are the principal factors in the price of Alaskan construction, which runs



WHERE THE WORK IS—Anchorage and Fairbanks are the defense construction centers of Alaska. Men, materials and machines come to these centers.

The Surveyor's Notebook

Reporting on Unusual Surveying Problems and Their Solutions

Notekeeper: W. & L. E. Gurley, America's Oldest Engineering Instrument Maker

How to Eliminate Errors in Precise Alignment

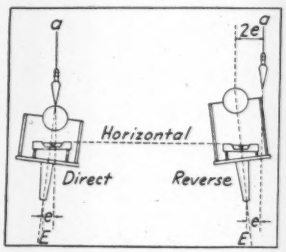
"In prolonging a precise line, as in tunnel surveying, it is important to eliminate, if possible, all errors which are cumulative," writes George Gabus of Livingston Manor, N. Y., engineer with the New York City Board of Water Supply.

"When a transit is set up *over* a point and a line is prolonged by the method of double centering, all errors due to instrument maladjustment are eliminated.

"Not so well known is the fact that when the transit is set up *under* a point the conditions are different and it is possible to introduce a cumulative error.

"The drawing *(see below)* shows an error which can accumulate by progression when the plate level at right angles to the line of sight is not in adjustment.

"Assume that the instrument is leveled and the dimple of the telescope brought under the point of the bob with the telescope normal and pointed toward the backsight. Since the plate levels are out of adjustment, the vertical axis will be inclined. Further, the center of the instrument will then be over some point 'E', which is *not* vertically under the point of the bob, even though the telescope's dimple is.



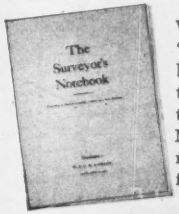
"When the plates are turned through 180 degrees, the instrument must be re-leveled; for the vertical axis will have to be inclined an equal amount in the opposite direction, if the plate level bubbles are to return to center.

At Willowemoc, N. Y., George Gabus sights with a Gurley transit during construction of tunnel for New York City's Delaware Aqueduct System.

This has little effect on the instrument center which remains over point 'E'; but the telescope moves out from under the point of the bob. If, while taking 'direct' shots and facing the heading, the plate level's left end is low, the line is displaced to the left and vice versa.

"Let 'e' equal the error at the first transit scale and 'n' equal the number of the last foresight scale. Then accumulated error at the nth scale will be $e \times \frac{1}{2}(n^2+n)$ which amounts to 120 times 'e' for only 15 scales.

"The moral: keep your instrument in adjustment and/or reset the instrument under the bob when preparing to sight reverses. Naturally, you have to start off with a fine instrument. I'm buying a Model 82-R Gurley transit. It can't be beat for tunnel work and retracing compass surveys in these Catskills."



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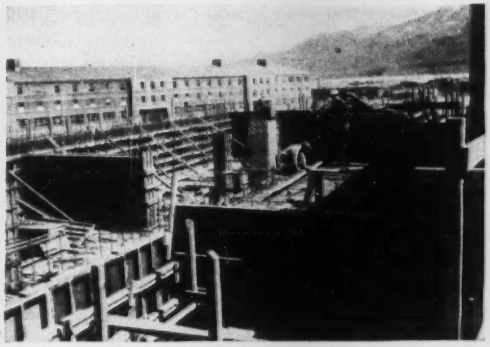
UTILIDORS house underground utility lines. Pipes shown in foreground at Anchorage will be enclosed by concrete box section.



PERMANENT BUILDINGS rise to replace temporary installations built during World War II at Fort Richardson, Anchorage.

from 190% to 400% of stateside prices for comparable facilities. The lower figure applies to work at coastal points. At Fairbanks the figure is 220%. Higher percentages apply to wilderness locations.

• **Contract competition**—Lately, U. S. Engineers have noticed shrinkages in the cost of work. They attribute these reductions partly to the improved conditions for doing business and partly to increased competition for Alaskan contracts. For 1952 season construction there were from 3 to 18 bidders on every contract. The average was about 8, compared with 4 for 1951 work. Where competition is keen, bids have been going under the engineers' estimates. On 114 contracts in force during 1952 there were 45 different contractors. The AGC Alaska Chapter lists 53 general-contractor members. It also lists 49 sub-contractors and 30 associate members. The latter are composed of transportation lines, material suppliers and others.

• **A-E contracts**—The staff of the Alaska District numbers 1,200—enough to get the jobs started and inspected, but far from sufficient to do all the design work for an annual work load that can run as high as $300 million at one time. The bulk of design is done by architect-engineer contracts with consulting firms.

At the end of the 1952 construction season there were 73 active architect-engineer contracts, 29 of which had been let in 1952. Value of the contracts awarded in 1952 was $1,240,000, and $60,000 of this business went to Alaskan consulting firms, but the remainder is being handled by firms in the states, mostly along the Pacific Coast. The Alaska District has a 75-man section in Seattle handling architect-engineer contracts.

Architect-engineer consultants account for about 70% of the district's original design. Staff engineers handle the rest, and they do the design in connection with change orders. They also prepare basic engineering data (topographic surveys, foundation investigations, etc.), preliminary designs, and budget estimates. Cost estimates are tied to ENGINEERING NEWS-RECORD cost indexes, so that if a project does not become a part of one year's budget, it automatically will have an up-to-date cost estimate the next time it is submitted for budget approval.

• **Big season coming**—This winter will be a busy one for architect-engineers working on Alaska plans. Since the end of October directives have been coming through for $140 million worth of work for which money already has been appropriated, and there is likely to be another $160 million available for obligation in 1953. Any way it comes out, 1953 will be significantly bigger than 1952, when only $55 million was let in new contracts. The total value of contracts awarded so far since the beginning of lump-sum work is approximately $350 million.

Currently available money should be obligated by April, in order to give contractors time to order materials and arrange transportation. This means that the engineers have about three months in which to negotiate and complete architect-engineer contracts that will get plans and specifications ready for bidding.

• **Alternate designs**—A complicating factor in the design picture is a construction-contract provision allowing bidders to propose alternate designs, with alternate bids (which presumably are lower than bids on basic designs). These alternates must be appraised and, if they are accepted, detail designs must be completed. Time usually is a factor that weighs against acceptance of alternate designs, but a few have been adopted. Notable examples during 1952 involved tilt-up construction of house foundation walls and warehouse walls. Advantages of tilt-up are about the same as they are in the states. Alaskan construction conditions having no particular bearing on the usefulness of this building method.

• **A fine place to build**—In fact, engineers note little difference between Alaskan on-site conditions and those in the states—during the outdoor construction season, that is. From April to October in the Fairbanks area, contractors lose little time on account of the weather. Annual rainfall is about 15 inches; there's more daylight; and temperatures are comfortable despite occasional midday highs in the 90s. During these months cool temperatures rarely complicate concreting procedures. (Conditions are still more favorable along the coast, despite greater rainfall.)

However, around Fairbanks the winter's darkness and extreme cold make outdoor construction next to impossible during those months. And there is a permafrost problem. This permanently frozen ground, which can wreck a foundation that transmits heat to it and thus melts it into instability, occurs sporadically in the Fairbanks area. Gravel soils don't have it (although they may contain treacherous lenses of pure ice), but the finer, frost-susceptible soils do.

If it is necessary to build where there is frost-susceptible material the material usually is removed and replaced with compacted gravel. Heavy foundations, like those for power plants, require precautions regardless of the material on which they rest. A gravelly formation is chosen. Then, after excavation is complete, steam points are driven as far as 20 ft down

to melt ice lenses and chunks. Next, contractors seek to consolidate the formation by one means or another. One method is to place light explosive charges in holes at 5-ft centers. Another, now being tried, is to cover the surface with repeated impacts from a busting ball—the kind that's used for wrecking buildings.

Seasonal frost also influences construction practices. Reaching depths of eight and more feet, this frost takes a long time to thaw in the spring. By the time building contractors complete their foundations and other underground works on thawed-out soil, they are likely to be at the end of their first construction season. For this reason the engineers usually let building contracts on a two-year basis. With his foundations ready, the contractor can get right to work on the superstructure in April, completing it (or at least enclosing it) during the full second season.

• **"Utilidors" cost money**—Extreme winter cold in inland areas also poses problems for the designer of underground utilities. Sewers and water lines must be kept from freezing by measures more positive than mere burial below frostline (especially where there's no frostline, due to permafrost). The popular and effective north country device for overcoming the underground utility problem is the utilidor, which is a box cut-and-cover tunnel structure containing steam, water, sewer, electric and telephone lines. The utilidors are costly necessities, which have a range in contract price from $50 to $150 a foot of length.

• **Austerity program**—While significant cost-reductions have been out of the question in underground utilities and some other service facilities, the engineers have found many ways to reduce building costs, particularly in barracks and other personnel structures for troops and airmen. The Air Force set high standards for personnel comfort in the early postwar construction program. But congressional pressures for economy gradually have forced the standards down. These apply to space-per-man criteria, the use of semi-private rooms for certain ranks, and to types of construction and adornment.

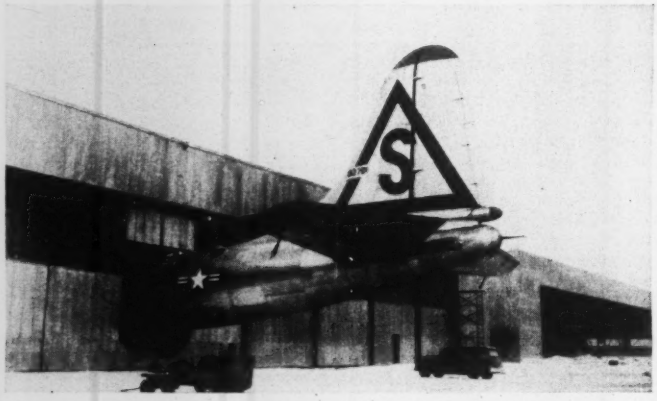
Under this "austerity program," roofs now are flat instead of pitched; walls are concrete block instead of reinforced concrete; buildings have practically no frills like plateglass doors and marble-paneled hallways.

Design economies as well as improved conditions for doing construction business in Alaska are claimed to have decreased the cost of barracks buildings by two-thirds in some cases.

Because fire is man's greatest enemy in the north country, there is no thought of going to non-fireproof construction, however. Buildings are designed for earthquakes similar to those expected in the San Francisco and Los Angeles areas.

• **Management**—District Engineer for Alaska is Col. Louis H. Foote, Corps of Engineers. Lt. Col. Carl Y. Farrell is deputy and Maj. Don H. Dragoo is executive officer. Civilian key personnel include M. R. Gilpin, Jr., chief of the construction division, and Warren George, chief of the engineering division.

Standardized steel hangars ease plane maintenance



LARGE BOMBER is serviced up North in hangar covering only wings and nose.

Completion of 22 cold-weather maintenance and repair wing-hangars for B-36 bombers at northern bases will enable Air Force personnel to carry out 'round-the-clock maintenance under all kinds of prevailing weather conditions.

In the past, the heavy bombers at northern bases have been serviced under temporary shelters built over the engines or they were flown to bases in warmer climates.

Eight of the hangars were erected at Limestone Air Force Base, Maine; eight at Rapid City AFB, S. D.; and six at Fairchild AFB, Spokane, Wash. All have a standardized structural steel framework and incorporates features which are designed to facilitate maintenance and repairs and to provide weather protection, comfort and safety for personnel.

The framing is covered with corrugated, galvanized steel. Insulation 1½ in. thick is provided for the roof and 1 in. thick for the walls.

• **Cantilevered framing**—Each hangar is 290 ft long and provides a clear opening of 240 ft. Width varies from 29 ft at each end to 111 ft in the center.

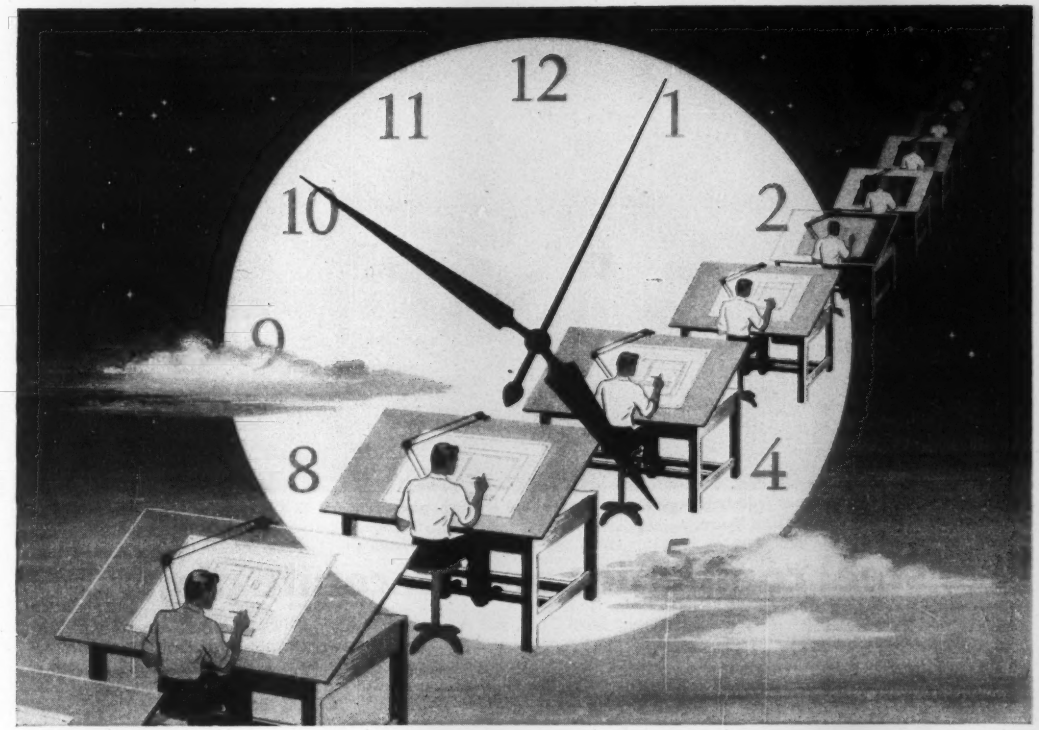
Having a roof supported on cantilever trusses, the structure covers the entire nose and wings of a plane. The tail protrudes through an opening in the door that is equipped with a rubberized tube. When inflated, this tube provides weather-tight protection around the fuselage. A modular system of standardized platforms under the engines and wings enables personnel to reach these sections whenever it is necessary.

The front door is constructed of 10 metal leaves, with transparent-plastic windows at the top, and is manually operated. It is also equipped with a series of "knock-out" panels for emergency use in case of fire. And in order to insure uninterrupted operation in winter, snow-melting pipes, connected with the interior heating system, were inserted below the hangar-door tracks.

At the rear of the hangars is a door to allow the motor-tow to make its exit after it has pulled a B-36 into position.

The hangars are heated with warm-air heating distributed through metal ducts. An exhaust-vent system removes gas fumes.

The hangars were designed and built by Luria Engineering Co., of New York City, which specializes in standardized hangars and industrial structures.



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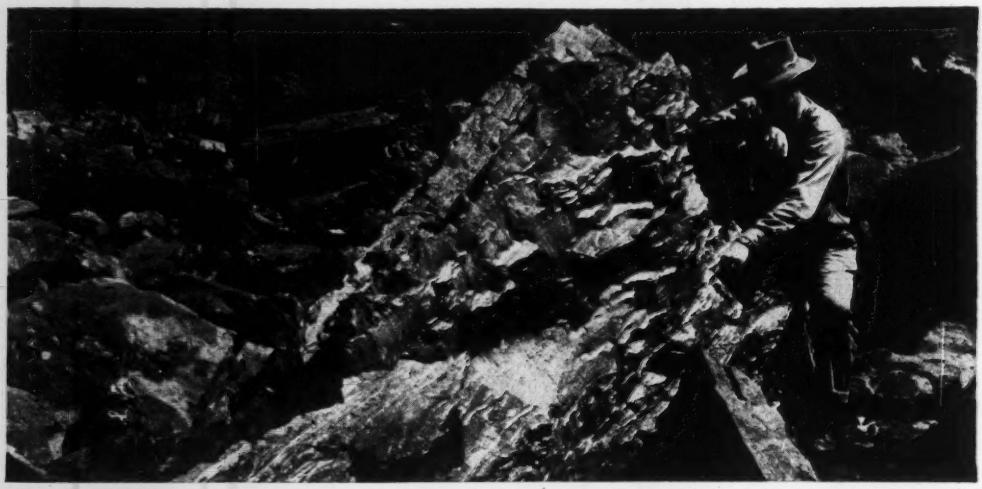


THIS IS TACONITE—the steel industry's hope for the future, but a tough production nut to crack. Giant plants to handle it are taking shape on the Mesabi Iron Range, as . . .

Five steel companies push taconite plans

J. Roland Carr
Associate Editor

CAN SUFFICIENT QUANTITIES of iron be extracted from taconite rock economically and in time to bolster the dwindling U. S. supply of direct-shipping iron ore?

The best answer is indicated by the amount of money being spent on plant construction and development on the 110-mile long by 1½-mile wide Mesabi Iron Range in Minnesota. Five major steel companies are spending upwards of $500 million on their taconite-processing programs. Eventually, the total investment may approach $1 billion.

Three mining companies (representing the steelmakers) are engaged in the development work, which includes stripping taconite mines; building townsites, a railroad, a deep-draft harbor and a huge processing plant on the northern shore of Lake Superior.

Two of these companies already are producing concentrates on a limited scale in small-scale plants, while the third will start processing the tough low-grade ore next spring.

By 1960 they expect to be producing 20,000,000 tons of taconite concentrates annually, and 40,000,000 tons annually by 1970.

• **Who owns them?**—The three mining companies are: Reserve Mining Co.; Erie Mining Co.; and the Oliver Iron Mining Division of U. S. Steel Corp. Reserve is owned jointly by Republic Steel Corp. and Armco Steel Corp.

Ninety percent of Erie is owned jointly by Bethlehem Steel Co. and Youngstown Sheet & Tube Co., while Interlake Iron Corp. and Pickands Mather & Co. own the remaining 10%. Oliver is wholly owned by U. S. Steel.

Reserve will have $160 million invested in its taconite project by 1957, when it plans to produce 3,750,000 tons of taconite pellets annually. Erie announced last spring that it has under consideration a $300-million construction program for the production of taconite concentrates.

No figures are available on how much Oliver will spend on its taconite research and development work. Four years ago it launched a 6-year, $34-million research, construction and expansion program, which presumably includes its new agglomerating plant and a concentrating plant now under construction near Mountain Iron, Minn.

(By way of explanation, "concentration," as it refers to taconite, is the process of crushing taconite rock and separating the iron oxide from it. "Agglomeration" is the process of combining the fine particles of iron into pellets, nodules, sinters or briquets for lake shipment eastward to the steel mills.)

• **Reserve's plans**—By the end of 1955 the Reserve Mining Co. expects to start producing taconite concentrates—in the form of pellets—at the rate of 2,500,000 tons per year. Two years later this rate of production should be 3,750,000 tons annually and, subsequently, it may be increased to 10,000,000 tons annually.

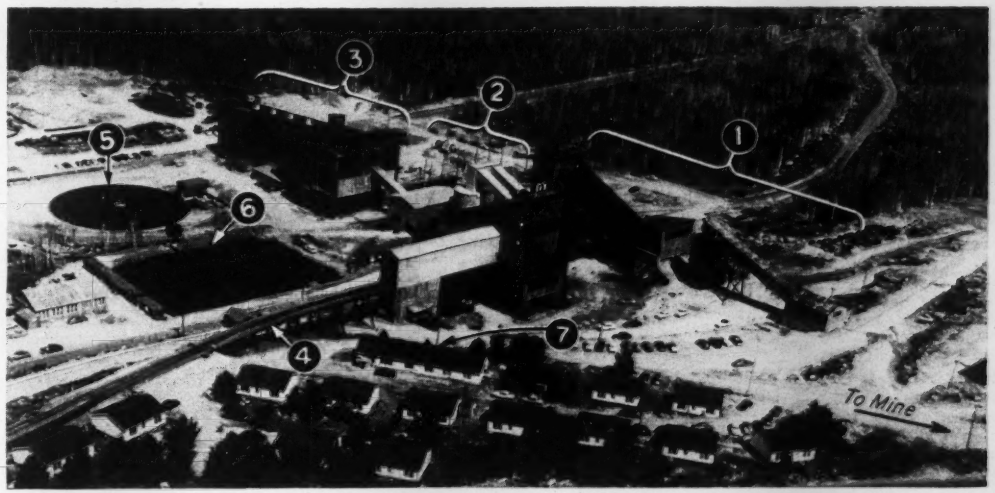
Reserve will mine taconite at its 3,000-acre deposit near Babbitt, Minn. Preliminary crushing will be done in a huge primary crushing unit to be built there.

The material will then be shipped to a large processing plant—part of the company's Lakeside project near Beaver Bay, Minn., on the north shore of Lake Superior—for further crushing, concentration and agglomeration. The pellets will be shipped by boat to the steel mills.

This has been a busy construction season for Reserve. Townsites are being built at Babbitt and Lakeside (ENR Oct. 23, p. 34), and a small commercial plant was completed this fall at Babbitt for the production of 300,000 tons of pellets per year.

Other work now under way includes: a 47-mile railroad to haul taconite rock from Babbitt to Lakeside; the first unit (2,500,000 tons-per-year) of the processing plant; and an 800,000-cu yd, 1,800-ft long breakwater at Lakeside, which is part of the harbor development there. Details of these major undertakings will be described in a subsequent issue of ENGINEERING NEWS-RECORD.

• **Oliver's plans**—Taconite developments of the Oliver Iron Mining Division of U. S. Steel are centered around Mountain Iron, and Virginia,



COMMERCIAL PRODUCTION has started already on a small scale in the Reserve Mining Company's new crushing, separation and pelletizing plant at Babbitt, Minn. Main elements of the plant are: (1) crushing; (2) and (3) grinding, separation and pelletizing; (4) coal trestle; (5) tailings thickener; (6) reservoir; and (7) mess-hall. (Grand Rapids Herald-Review photo)

Minn. Oliver will mine the taconite near there; haul it about 1-mile to a concentrating plant; then ship the fine particles of iron concentrate about 6 miles by rail to its new agglomerating plant south of Virginia, Minn., for manufacture into sinter or nodules.

Work currently under way includes: Stripping the mine; construction of the concentrating plant for crushing and magnetic separation of the iron; and an earth-fill dam to form a tailings reservoir. Details of these construction projects will be described in a subsequent issue.

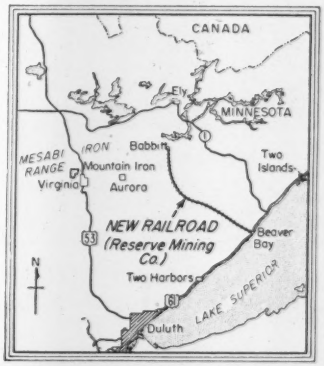
Oliver expects to start producing taconite sinter and nodules next spring, at a rate of 500,000 tons per year. The taconite concentrates will be shipped via the Duluth, Missabe & Iron Range Ry. to Duluth or Two Harbors, Minn., for lake-shipment to U. S. Steel mills.

• **Erie's plans**—Although the Erie Mining Co. has a 200,000-ton-per-year experimental taconite processing plant near Aurora, Minn., few details are available as to its plans for commercial production. Last year it shipped 70,000 tons of taconite pellets from the Aurora plant, which has been operated intermittently for the last four years.

First indications of Erie's objectives in taconite processing were disclosed by the company three years ago, when it petitioned the Minnesota Department of Conservation for a sufficient water supply to serve a 10,500,000-ton-per-year processing plant to be built near Aurora.

At that time company officials indicated that the first unit of the plant would have an annual production capacity of 2,500,000 tons of concentrates. If this unit proves successful, said Erie, a second unit of equal size would be added and, eventually the plant might be increased to a total production capacity of 10,500,000 tons annually.

The water application asked permission to construct a channel between Upper Partridge Lake and Lower Partridge Lake, and various dams, spillways and pumps to form a reservoir from which water could be pumped to the processing plant at a rate of 12,000 gpm.



TACONITE DEVELOPMENTS are near Mountain Iron for Oliver while Erie's are near Aurora, and Reserve's are at Babbitt. Oliver and Erie will ship taconite concentrates to lake ports by rail, but Reserve will ship partly crushed taconite to a plant being built near Beaver Bay for processing.

Early this year the Erie Mining Co. filed an application with the Defense Production Administration for a certificate of necessity based on the entire 10,500,000-tons-per-year project, estimated to cost $300 million.

If the project is undertaken, the initial program would be a 5,250,000-ton-per-year development, which probably would take four or five years to attain, company officials said. Expansion beyond that amount would be accomplished in a sequence of stages.

A large steam power plant, dock and loading facilities would be built at Two Islands, on the north shore of Lake Superior. And about 65 miles of new railroad would be needed for shipping pellets from the Aurora plant to Two Islands.

• **Why the rush for taconite?**—The multi-million-dollar construction now under way or planned for the production of taconite concentrates raises the question: What about our total supply of direct-shipping iron ore in the United States? You can get a wide variety of answers.

The more pessimistic estimates point out that if we take the known deposits, explored by drilling, of direct-shipping ore from both underground and open-pit mines—about two-billion tons—and divide it by the 100,000,000 tons shipped to the mills each year, the answer is a 20-year supply.

But this isn't the true picture. "Discovery ore," which is ore found by miners in fissures or channels and not revealed by exploratory drilling, has added many tons to the reserve figures.

Finding these small pockets of "discovery ore" can't go on forever, of course. But men in the mining industry, who should know, estimate that we have a 50-year supply of direct shipping ore—at our present rate of consumption.

Basically, however, the steel companies want to be able to augment their direct-shipping production with taconite production, from a standpoint of national security. They want to keep some direct-shipping deposits on a standby basis, ready to throw into high-speed production should a national emergency require it.

• **Plenty of taconite**—In contrast to dwindling supplies of direct shipping iron ore, the U. S. has a virtually inexhaustible supply of iron-bearing taconite rock. It is estimated that only 5% of the iron formation known as the Mesabi Range is merchantable or treatable iron ore. The remainder is taconite. However, only a portion of the taconite can be factory-made into a usable iron ore concentrate.

There are many estimates as to how much taconite there is. One of the most reliable says that enough is available to make 1.75-billion tons of concentrates—using present concentration methods (magnetic separation) and mining the formation to a depth of 200 ft with open-pit methods.

One thing is certain: Bringing in the concentrates with a blend of Minnesota's high grade ores will extend the life of all deposits a good many years.

Reserve's taconite mine at Babbitt is known to contain 1.5 billion tons of magnetic taconite which can be mined by the open pit method. This deposit, when converted to high-grade taconite concentrates, at a ratio of 3 to 1, will yield 500,000,000 tons of pellets—enough to supply 10,000,000 tons annually for the next 50 years. And geological studies indicate the presence of substantial additional tonnages, about equal to these known tonnages.

At its taconite mine near Mountain Iron, Oliver spent two years diamond drilling that deposit. Nearly 12 miles of test holes were drilled, delimiting a large area of taconite concentratable by magnetic methods.

• **Not a new venture**—Processing taconite of less than 25% iron content into pellets of more than 60% iron isn't a new venture. In 1922 D. C. Jackling, a noted mining engineer, and his associates, completed a taconite plant near Babbitt.

But he was 30 years ahead of his time, and the venture failed. One reason was the difficulty of drilling the taconite economically. Taconite is harder than flint. (Old-time miners say there is nothing tougher than taconite, except old-time miners). The other reason for failure of the project was that the taconite concentrates could not at that time compete in production costs with direct shipping ores.

In Mr. Jackling's time, churn drills were used for drilling the blast holes. But crews averaged only about 1 ft per hour, and a bit-life was only about 3-in. of hole.

• **Jet piercing of holes**—Today, however, holes for blasting taconite are made by a recently developed jet-piercing method. This is how it works:

The jet-piercing machine is a towering flame thrower using oxygen to create fantastically high temperatures (about 4,500 deg F.) that pierces a hole right through the tough rock.

A petroleum product (usually kerosene) is mixed with oxygen in the burning head to form the intense-heat flame. When the flame strikes the rock, the intense heat causes a thin surface layer to expand and break away.

The action of the jets whisks the spalled rock out of the path of the flame. Steam-pressure and water-quench embrittle and help carry the rock particles up out of the hole. A jet-piercing rig averages 18-ft of 7¼-in. minimum diameter hole per hour of operation.

Two other recent developments have contributed substantially to the advancement of drilling techniques for taconite: A huge percussion drill employing a piston stroke and having a tungsten carbide head, and a drill rig using the jack hammer principle. Enormous quantities of electric power and water will be required for large-scale commercial processing. It is estimated that up to 100 kwh of power and 50 tons of water will be required to product one ton of concentrate for shipment.

PROCESSING METHODS are company-held secrets but, in general, the taconite will follow this flow diagram of Erie's pilot plant at Aurora, Minn.

TACONITE MINING will be by the open-pit, bench method, similar to current operations in this 63-year old mine of Oliver Iron Mining Division (U. S. Steel) near Mountain Iron, Minn. Blast holes, however, will be jet-pierced, instead of drilled.

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CLAY PIPE SEWERAGE keeps pace with expansion in Highland Park, N.J.

Sewerage lines are extended through northern New Jersey's rocky soil to serve new homes in Highland Park. Here, Vitrified Clay Pipe sanitary sewers are being installed along Valentine St.

Highland Park, in New Jersey's booming Middlesex County, is rapidly expanding as defense workers move in to man a score of new plants in the area. Industrial employment in the county has jumped 127% in the last decade — 10% in the last year — and more than 60% of the area's plants are engaged in defense production.

As new homes go up, readily-available Clay Pipe is installed to assure residents the finest sanitary facilities. The acid soils, sewage gases, and other corrosives that cause ordinary pipe to fail have no effect on Vitrified Clay. It's the *only* chemically inert pipe that has proven its worth by years and years of performance in the ground. Its protection is permanent . . . its economy is sound. *It never wears out!*

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Rapid City, S. D. (Air Force Base)	54,000 ft.
Limestone, Maine (Air Force Base)	65,000 ft.
Tucson, Ariz. (Air Force Base)	440,000 ft.
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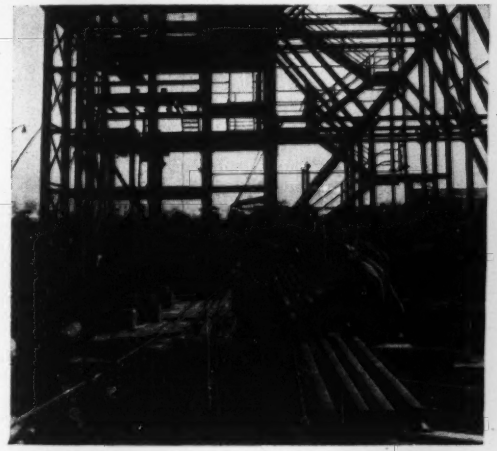


SKID RAILS were greased to make it easy to slide a tall, heavy headframe from its erection site to its permanent position over a mine shaft. Motive power was supplied by truck-mounted winches.

MINE FLAT CARS roll the light backstay section of the headframe to the permanent foundation, while the heavier section skids on the greased rails.

Tower skids, rolls 67 ft into place

About one month of working time in a new mine was saved by erecting a big steel headframe a short distance from the mine shaft and then pulling it into place over the opening. The mine, at Friedensburg, Pa., was out of service only two days, the shutdown permitting removal of a temporary timber headframe and the installation of the permanent one.

The steel structure is 37x56 ft in plan at the base and 134 ft high. It weighs 200 tons. It was designed to be built around the temporary headframe, but changes in plans and schedules intervened. To avoid interference with mining operations and to prevent idleness of the mining crew, the steelwork was erected about 67 ft from its final position over the shaft.

• **Greasy ways ease travel**—To move the 200-ton tower to the shaft, the contractor laid two lines of 90-lb rails 24 ft on centers. Each line consisted of four rails side by side. Polished and greased to reduce sliding friction, the rails extended over the temporary foundation and supported the main columns of the headframe during erection. The plan was to skid the heavy portion of the frame along the rails to the shaft.

The inclined backstay section, however, was light enough to be supported on mine flat cars. So while the main columns skidded over the rails, the outer end of the light backstay rolled into position on three coupled cars.

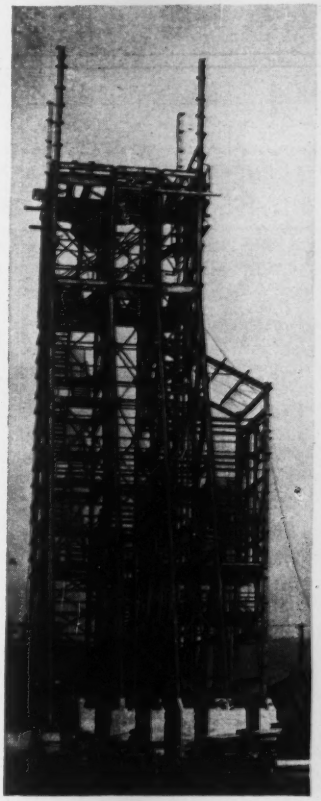
Motive power for skidding was supplied by two low-speed winches mounted on truck tractors. For better control of the forward movement, the winch of a truck crane also was connected to the backstay.

• **Rigging**—The 76,000-lb pull required to move the structure was transmitted through a luff fall rig, a term and tackle credited to Scandinavian sailors. Two sets of block and tackle—a main fall and an auxiliary, or luff, fall—were connected to produce a high mechanical advantage. The rope from the winch passed over the blocks of the luff fall, which had a mechanical advantage of five. The lead line of the main fall, which had a mechanical advantage of seven, was clamped to one of the blocks of the luff fall. Result was an over-all mechanical advantage for the rigging of 35.

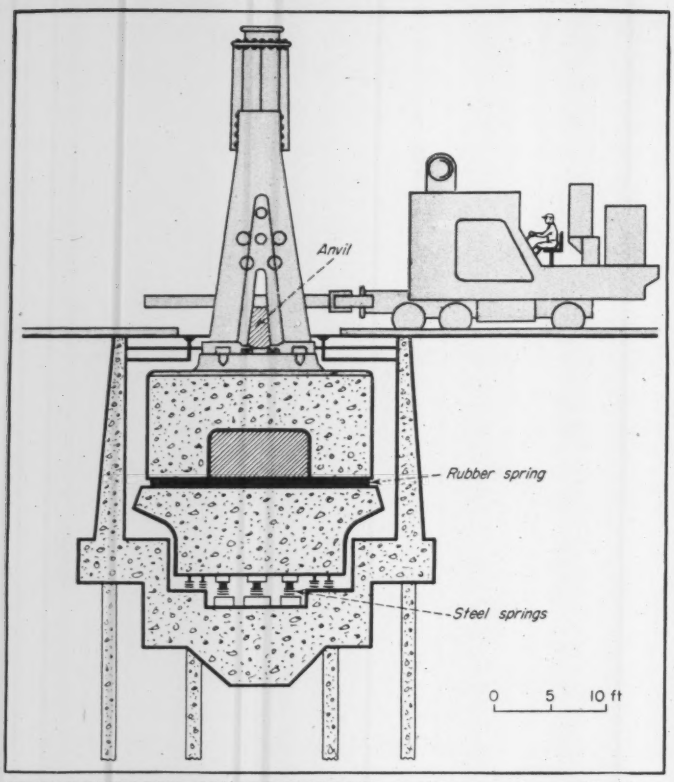
Standing rigging of both main and luff falls was anchored to the permanent foundation piers, which were braced against other permanent and temporary piers. Periodically, this rigging had to be shortened.

To start the headframe moving, two crews of men, using a pair of railroad rails on rollers as a battering ram, pushed against the main columns. Once on the grease, the headframe traveled at 2.5 ft per min under the pull of the rigging, without additional help. When it was positioned over the anchor bolts, it was lowered into the foundations with the aid of 30 screwjacks. Total time for the move was 3 hr 20 min.

The headframe, as well as all the surface facilities at this new mine of the New Jersey Zinc Co., was designed and built by The Austin Company.



HEADFRAME, 134 ft high, reached its permanent position, over the mine shaft opening, less than 3¼ hours after its journey started.



TWO PRESTRESSED CONCRETE BLOCKS on springs supporting an 8-ton forge in a Huntington, W. Va., plant have withstood pounding for over a year without damage.

Forge support proves tough

- **Vibration transmission is negligible**
- **Prestressed concrete cuts maintenance**

UNIQUE CONSTRUCTION METHODS were applied to the foundation for an 8-ton forging hammer in the Huntington, W. Va., plant of International Nickel Co. to meet rigid performance requirements. The owner wanted a substructure that could take a heavy shock, would not fail due to fatigue, would not require maintenance and would not transmit vibrations to the surrounding area.

The foundation has been in use just about one year now and is living up to expectations.

It was made massive to resist the shock. It was prestressed to prevent fatigue failure. It was made of high-strength, homogeneous concrete to reduce maintenance. And it was so proportioned and supported as to cut oscillatory movements to a negligble amount.

• Hammer hits fast blows—Generally used for forging large ingots of nickel and nickel alloy, the forging hammer is actuated by superheated steam at a much higher pressure than normally applied. The impact is unusually large. And a blow may be delivered every ¾ sec.

As a result of the blow, the whole system—foundation and ground—receives a shock wave that causes its components to vibrate at their natural frequencies. (The ground has a natural frequency; a soft clay, for instance, may oscillate naturally at 10 cycles per second, a stiff dry sand at 30.) If any two parts have nearly the same natural frequency, the amplitude of their oscillation will build up rapidly, and the resonant components will break up. Hence, the foundation is designed to prevent resonance.

• Base stops stress build-up—Vibration of the anvil and foundation, as well as of the hammer superstructure, is brought to a halt within the ¾-sec interval between hammer blows; otherwise the amplitude might build up. Also, for obvious reasons, the initial amplitude is kept small.

These conditions were met by controlling the sizes of the masses employed in the foundation, the various constants of supporting springs, the amount of damping, and the location of springs and dampers. The final design was based on a thorough vibration analysis.

• Floating masses—The foundation consists of two massive concrete blocks, one above the other, resting on springs and dampers in a concrete-lined pit. All parts are visible and accessible for maintenance.

The guide frame of the hammer is bolted to the top block, which is roughly 21 ft long, 18 ft wide and 10 ft thick and weighs about 200 tons. This base is supported on four sturdy, precast concrete legs. Fastened to the block with tensioned cables, the legs rest on a rubber cushion sandwiched between two steel plates.

The anvil also rides on rubber springs but is set in an opening in the top block and has no contact with it.

The rubber springs, in turn, are supported on a second block of concrete of about the same size as the upper block. The lower block is mounted on 432 steel coil springs at the bottom of the pit.

• Major design factors—Shape of the huge concrete blocks was an important consideration, because internal shock waves are reflected from their boundaries back into the interior. To prevent a stress build-up, they were designed to disperse, rather than focus stress waves.

A homogeneous concrete was specified for the blocks, because the velocity of the stress wave varies with the modulus of elasticity, which, in turn, depends on the quality of the concrete. If good concrete adjoins a mass of poor concrete, a stress wave will travel through them at different speeds. This difference in velocity produces a shearing force at the boundaries of the two types of concrete large enough to cause structural damage.

To obtain a homogeneous concrete, the designer called for placement by the Intrusion-Prepakt method. This requires coarse aggregate be packed into the forms and then the voids filled by pumping in grout.

To minimize the possibility of a fatigue failure, the designer planned to keep the concrete permanently in

compression, even when the shock wave travels through. For this reason, he required the two concrete blocks to be prestressed in three directions.

• **Tight quarters complicate job**—As a consequence of this decision, another problem arose: The foundation was to have been placed in an existing pit, which was to shallow and narrow for the new design. To suit the new substructure, the pit was deepened and a new floor placed on existing piles. Also, a heavy concrete frame was incorporated to resist the thrust from side springs on the lower concrete block. But while the pit was wide enough to fit the concrete base in, there was insufficient room for the jacks that tension the prestressing wires. Also, there wasn't enough room for jacking the cables underneath the block.

The problem was solved by a complicated arrangement of the steel in the lower block that under ordinary circumstances would be unnecessary. One set of cables was started at one edge of the block and passed diagonally upward to the other edge. There, it was turned more than 180 deg on a fairly large radius and returned to the point of origin. A second similar set was started and anchored at the opposite edge of the block. Next, third and fourth diagonal sets of like arrangements were inserted between the ends of the base. But a fifth set was installed vertically.

All wires were placed in sheaths to prevent bond with the concrete and were grouted in after being tensioned to 140,000 psi. Each cable consists of twelve 0.192-in. dia wires.

Friction between wires and sheaths at the bends during the stressing operation created another problem. To solve this, a saddle was placed inside each bend and two flat jacks inserted between the saddle and the concrete base. This made it possible to stress each cable both at its end at the bend, minimizing friction losses.

In addition to the prestressing steel, mild steel bars were placed near the outer surfaces of the blocks. They were incorporated to prevent the formation of fine hair cracks, since in dynamic structures, stress concentrations around cracks lead to the spread of fatigue failures throughout the whole member.

• **Strong concrete developed**—After considerable research, a mix that would attain high strength when made by the Prepakt method was formulated.

Coarse aggregate was a crushed limestone with a fineness modulus of 6.97. The grout that was pumped in to fill the voids consisted of 9 parts portland cement, 6 parts sand with fineness modulus of 1.50, and 1 part pozzolanic material. It also contained an intrusion aid. The ratio of water to cement plus pozzolan was 0.379.

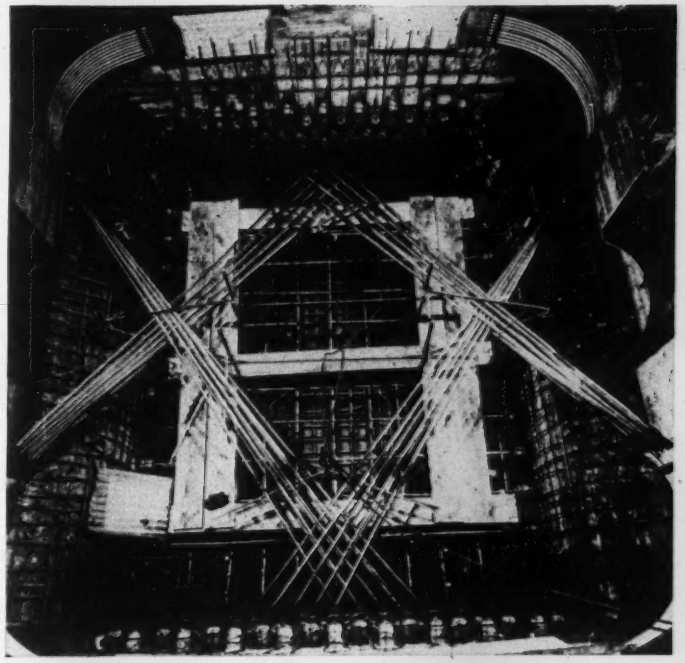
Compression tests showed strengths of this concrete to be 4,000 psi at 6 days and 5,700 psi at 27 days, increasing steadily to 10,600 psi at 180 days.

• **Model forestalls trouble**—Before construction started, a scale model of the lower block was built. It presented a clearer picture of the installation than the working drawings, enabled the steel men to plan their work in advance, and prevented mistakes.

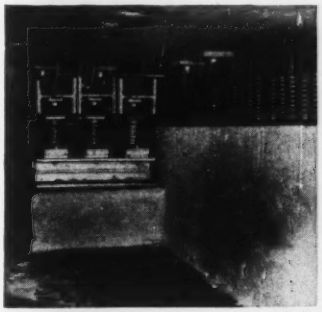
The few wrinkles that developed during construction were easily ironed out. After the hammer was installed but before it was placed in operation, vibrograph readings were taken on the anvil and the upper and lower block. These checked the calculated frequencies and amplitudes with an average accuracy of about 5%.

The foundation was designed by J. H. A. Crockett, consulting engineer, London, England. He was assisted by D. B. O'Neill, also of London, on general design problems; L. P. Brice, Paris, France, on the prestressing. A Talbot, London, on advanced vibration mathematics; and Prof. Raymond E. Davis, University of California, on grouted concrete research.

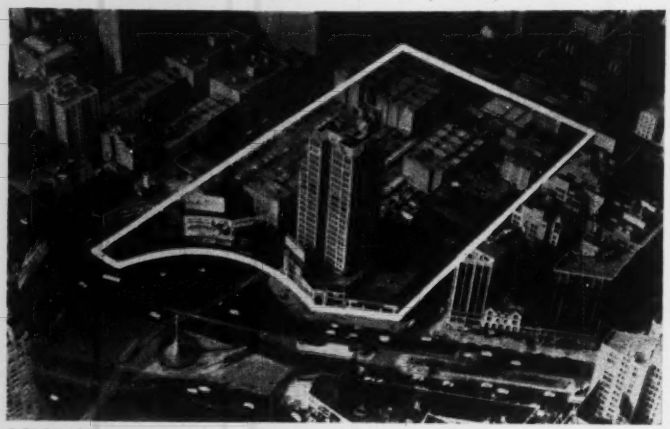
The International Nickel Co. acted as general contractor, with L. O. Walcutt in charge. The Prepakt Concrete Co., Cleveland, Ohio, placed the concrete in the huge concrete bases, and the Freyssinet Company, New York City, with Niels Thorsen supervising, did the prestressing. Technical supervision of construction was carried out by Robert W. Hunt Co., New York City, with A. M. Klein, assistant manager of the New York district, in charge.



PRESTRESSING WIRES, in sheaths to prevent bond with the concrete, were inserted between opposite walls of the forms. Sloping up from conical-wedge anchorages at each wall, the wires apply a three-dimensional prestress.



DAMPERS (left) and springs (right) were placed under the lower block.



COLUMBUS CIRCLE AREA, which will be razed to make way for . . .

COLISEUM AND HOUSING on the superblock created by closing 59th Street.

Newest New York City coliseum plan is revealed as part of redevelopment

Seeing the project as a triple-threat attack on several problems—slum clearance, provision of a suitable convention hall, and some answer to traffic congestion—New York City groups pushed ahead this week on newest plans for construction of an auditorium at midtown Columbus Circle.

As recommended by the New York City Committee on Slum Clearance, the coliseum would be built by the Triborough Bridge and Tunnel Authority, on a "superblock" formed by closing off West 59th Street between Columbus Circle and Ninth Avenue (a heavily traveled artery) and developing the entire area between 58th and 60th Streets.

The coliseum itself would occupy roughly half of the 275,000 sq ft thus provided. The remainder of the area (to the west) would be given over to an apartment development. Parking space would be provided in the coliseum building for about 800 cars.

The new proposal differs radically from an original one made late in 1946 (ENR Nov. 21, 1946, p. 10) for the same area. At that time—with the additional backing of the Madison Square Garden Corp.—it was proposed that a vastly larger structure be built (it would have had roughly 349,000 sq ft on one floor) by using the entire available area, bridging West 59th St., and providing parking space for more than 2,000 cars and seats for as many as 25,000 persons in the main arena.

Interestingly enough, the original proposal envisaged building an entrance on Columbus Circle around an existing 24-story office building, clearing only lesser structures. The new plan calls for clearing the entire site.

• **New York Coliseum**—The coliseum is intended to meet a long felt need in New York City: publicly-owned facilities to meet all the requirements of conventions, trade shows, expositions and periodic industrial exhibitions. Such attractions, says a committee report circulated last week, have been lost to other cities because N. Y. City has no proper accommodations for the larger shows and conventions.

Design objective was a building with 225,000 sq ft of exhibition and show area. As proposed in the report, some of the display area would be located around the perimeter of the building, in split level fashion, so that vertical travel between levels is reduced to a minimum, and a continuity of space achieved.

The exhibition hall concourses are designed so that a number of smaller shows can be operated simultaneously. Vertical transportation consists of a primary system of moving stairs and a secondary supporting system of elevators.

The central core of the building has a large combination exposition and exhibit hall and auditorium, surrounded by balconies with about 6,000 fixed seats. The set-up will permit production of big spectacles on a large, fully-equipped stage, or on the floor of the main hall.

In addition to the fixed seats, provision has been made for 12,000 temporary seats in the central auditorium and for 7,500 more in meeting rooms of varied size and capacity.

• **Operations**—Elaborate facilities are planned for all backstage operations. Over 50,000 sq ft of storage area is included in the plan. Ramps and elevators capable of handling the largest sized truck-trailers would make it possible to run such vehicles directly to the floors for loading and unloading, eliminating double-handling and street loading.

The main lobby of the convention area is to be one floor above the

(*Continued on page 51*)

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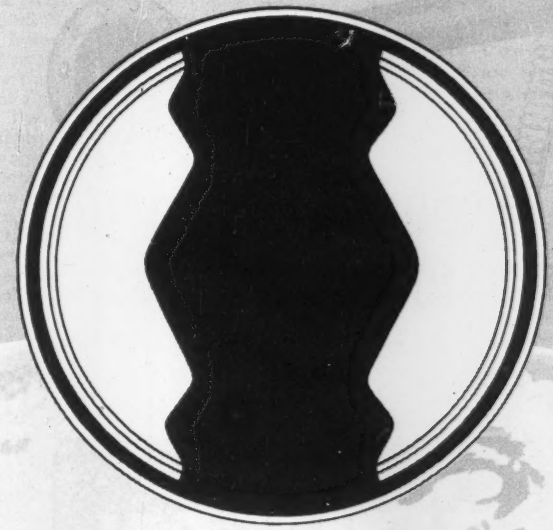

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street, with entrances and exits at ground level. Also at ground level, and under the coliseum, are provisions for a large arcade of stores and a restaurant.

Below the street grade, and extending down two stories, will be a public garage accommodating approximately 800 cars.

• **Housing**—The housing area west of the coliseum is to be improved by a responsible private developer. The report says that it has a satisfactory bid for this project.

The housing project will consist of two apartment buildings covering about 25% of the western half of the plot. There will be 528 apartments, including a large number of efficiency units which are much in demand in that area of Manhattan.

Dallas city council drops water tapping plan

Dallas' critical water situation became a political issue last week to tap the West Fork of the Trinity River. (ENR Nov. 13, p 54).

Instead, the council ordered drilling of six more wells and named a special three-man committee to try to figure out a more suitable water source.

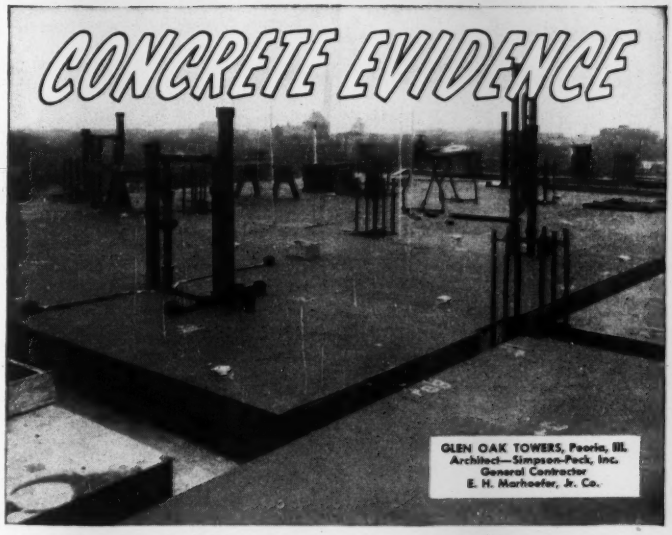
The city already has increased its supply, in a small way, by tapping White Rock and Bachman Lakes and reactivating a few small wells. In addition consumption is down and three deep wells are now being drilled.

On the basis of a report by the Texas Health Department, water in the West Fork was called the least desirable of five possible water sources because of pollution from Fort Worth and other upstream cities.

The other four in order of preference:

- Construction of Trinity sand wells and use of raw water from Dallas' White Rock Lake.
- Use of Tarrant County water improvement District No. 1 water supplied to Elm Fork by pipeline protected canal.
- Use of water from Lake Texoma.
- Use of water obtained directly from the Red River.

Forgotten in the bickering was the first good rainy spell in Dallas in more than two years. Cloud seeders are also increasing the rainfall in the city's watershed area and Lake Dallas has risen slightly. Even more heartening to the city is Irving Krick of Denver, in charge of the cloud seeding operations, he predicted a five-year wet cycle in Texas.



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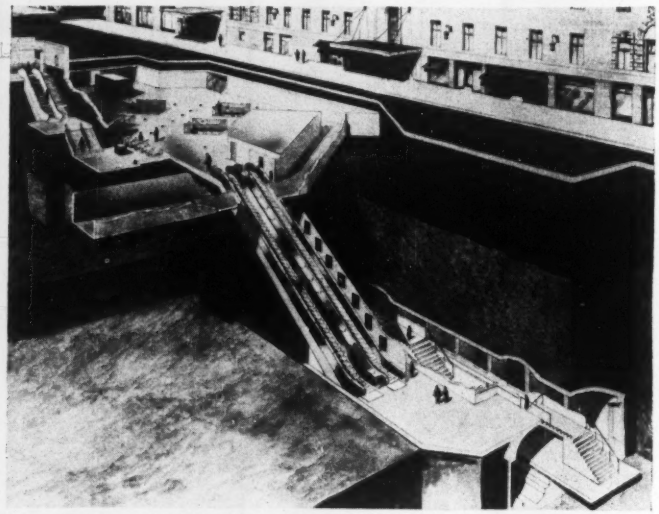


TWO SPEED ESCALATORS for subway riders at 42nd Street Station. The two long stairs are being built by New York City Board of Transportation, the short stair by the Bowery Savings Bank.

Install high-speed public escalators

Two new moving stairs are being installed by the Board of Transportation of the city of New York to carry subway passengers to and from the Queensboro line and the Lexington Avenue line at 42nd Street. The Queensboro subway line is 40 ft below the Lexington Avenue line. The escalators will supplement three elevators and ordinary stairs.

This installation of the Otis Elevator Co., will be the first used by the general public, to run at 125 fpm. Until now most moving stairs in the U. S. have been restricted to 90 fpm, although moving stairs in London's Underground have operated at 160 fpm for many years.

These escalators will be the first in the U. S. to have two operating speeds. The fast, 125-fpm rate during rush hours and the more economical speed of 90 fpm during other periods. Both stairs can be run in an upward direction during the morning rush and downward in the evening.

The Bowery Savings Bank is installing an escalator at the same station with the same operating speeds to take people to and from the Lexington Avenue subway and the bank.

The combination of the two, long subway escalators and the short bank escalator will enable passengers to ride, via escalators, from the Queens subway to the street above, which is busy 42nd Street.

The Board of Transportation escalators will be 79 ft long and 4 ft wide. Each will have a capacity of 8,000 persons per hour.

Redevelopment may come despite bond defeat

Redevelopment of a 44-block Portland, Ore., blighted area to create a modern light industry and commercial district on the northwest fringe of the city may move ahead despite defeat of a $2-million tax levy bond issue in the Nov. 4 balloting. Financing questions involving the city's one-third share of the $7-million proposal still pose the major barrier.

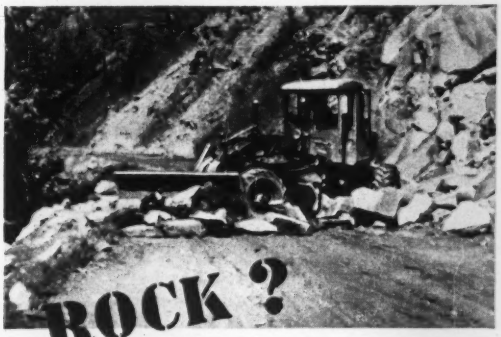
Members of the Urban Redevelopment Advisory Board have asked the Portland Housing Authority to continue efforts to carry through the Vaughan Street project (ENR, Sept. 25, p. 67), the first of three designated for purchase, clearing and resale of land under zoning regulations.

"Our members," explained Guy E. Jaques, chairman of the advisers, "are convinced the voters disapproved bonds and taxes but were not opposed to redevelopment in the Vaughn Street district."

On motion of Fred Manish, secre-

(*Continued on page 54*)

what's YOUR headache.



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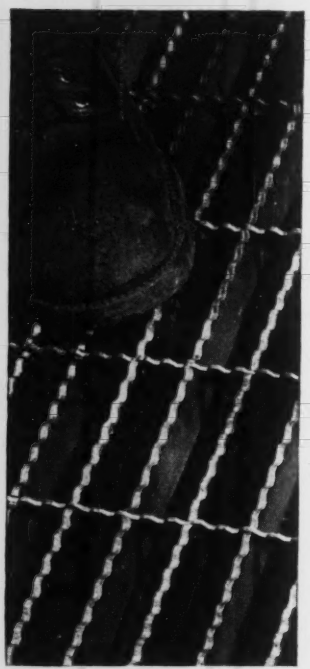

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tary of the Portland Building Trades Council, the board 1) asked the housing authority commissioners whether funds to cover the city's one-third (set at $1,536,200) share would be available from other than voter-approved bond or tax sources; 2) if such funds were available, urged formation of a new, larger and stronger committee to seek city council endorsement of the project on the basis that the housing authority would guarantee the financing.

The federal government has assured the Portland Housing Authority the other two-thirds of financing was budgeted for Portland's initial project.

In order to expedite plans, a suggestion has been made that PHA profits from disposal of war housing and from the sale of cleared land acquired from the federal government, might be used as working capital. One official, who preferred anonymity, said in commenting on the election result that the project "probably didn't need a bond issue." The question had been rushed to the ballot and advocates whipped up a six-week campaign. Voting by precincts within the area was divided on both sides by a few votes. Adjacent districts voted overwhelmingly in favor but the margin narrowed and then turned against the proposal as the distance from Vaughn Street increased. The total vote was lighter than on any other major municipal ballot question.

Possible credits toward the Portland costs involve city utility installation values and state-federal improvement of a primary highway which is routed through the Northwest district.

$20-million river job makes progress

With 21% of the initial phase of the project already completed, the St. Paul district, Corps of Engineers, two weeks ago began pouring concrete for Pier 4 of the lower dam of the St. Anthony Falls upper harbor project on the Mississippi River in Minneapolis, Minn.

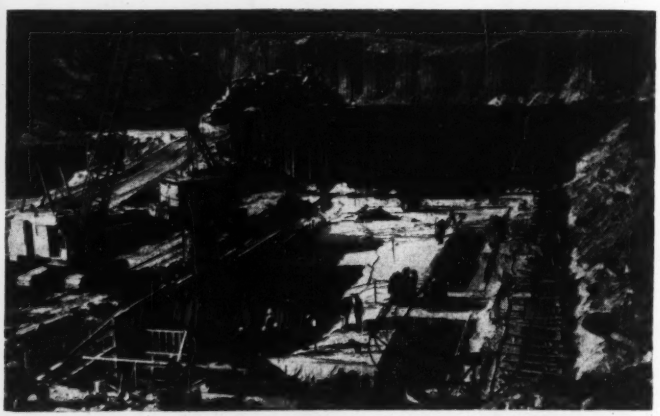
The project is under the general supervision of Col. A. H. Bagnulo, district engineer and Emil Silverman, project engineer.

Keys for the pier are now being placed, after which the rest of the concrete for the 38 by 152-ft unit will be poured, Silverman said.

The pier is scheduled for completion in January. Because the extremely cold Minnesota winter season has started—although it was two weeks late—an enclosure will be built around the pier to permit the 150-man crew to continue during freezing weather.

Already finished in the $5.5-million job are Pier 1, most of Pier 2 and the non-overflow section in part of Coffer-Dam 1, Silverman said. Pier 3 will be installed by 1954. Part of the existing coffer-dam will be removed by next March.

The entire upper river project includes construction of two locks and a dam at a cost of about $20 million to make the Mississippi River navigable for large craft all the way to Minneapolis. Now larger craft must stop at St. Paul.



POUR STARTED on Pier 4 for lower dam of the St. Anthony Falls upper harbor project. It will require about 400 cu yd of concrete.

Los Angeles passes laws to organize slum-clearance

Los Angeles' argument over the best way to organize a slum-clearance program (ENR Sept. 4, p. 254) was settled last week with Mayor Fletcher Bowron's approval of three ordinances that created a Division of Rehabilitation and Slum Clearance within the Department of Building and Safety, and gave it legislative tools.

The new program, thinks Building and Safety head Gilbert E. Morris, is a forward step that may well provide a model for other cities determined to do their own slum clearing. He believes that in most cities programs have suffered from division of responsibility among various municipal departments. In Los Angeles, all responsibility henceforth will be centralized.

What the new ordinances have done is to create an official housing department, thus relieving the Health Department of all responsibility beyond strictly health concerns, and unifying all legislation pertaining to substandard housing into a single enforceable code.

The ordinances are specific in spelling out what is to be done. A new division of the Municipal Code was adopted, incorporating all provisions of the State Housing Act and the architectural provisions (room sizes, light and air, electrical outlets, sanitation, etc.) in the building sections of the Municipal Code. These provisions, formerly applicable only to new construction, were made retroactive by making them applicable to "any and all existing substandard residential buildings."

Substandard residential buildings are defined as those in which certain described conditions exist "to any extent that endangers the life, limb, health, property, safety or welfare of the public or the occupants thereof." The conditions include such matters as structural unsoundness, improper materials, fire hazards, defective wiring, improper sanitation, etc.

The ordinances set up mechanics for inspection, hearings, notifications of work to be done, and time limits for repair or demolition.

Provision for cooperation from other departments is included. Fire and health inspectors who come across substandard buildings are required to report on them in writing to the Building and Safety Department; or Building and Safety can require the other two departments to make inspections for fire and sanitation violations.

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Designer-contractor firms advance prestressed concrete abroad

Europeans are building many more prestressed concrete structures than are Americans, and at lower cost, reports L. Coff, consulting engineer, of New York City, on his return from a 4-month tour of eight countries overseas. The chief reason for the greater use made of prestressed concrete, he says, is that alternative designs may be submitted by contractors with their bids, thereby creating greater incentive for economy.

Mr. Coff observed the construction of concrete structures in England, Belgium, Austria, Switzerland, France, Germany, Spain and Portugal. In almost every country, he found ingenious designs and construction methods with no counterpart in the U.S.

L. COFF: "Future progress depends on how much erection of prestressed structures can be simplified . . ."

• **Long-span girders**—In England, for example, British European Airways, is building two hangars with roofs supported on prestressed concrete girders having spans up to 150 ft (ENR Nov. 13, p 61). Constructed by the Freyssinet method, these long-span members are both precast and cast-in-place.

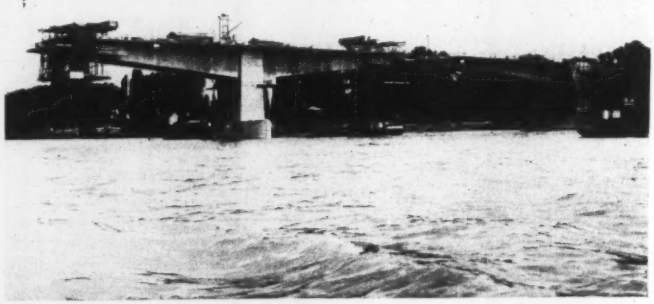
Coff comments that the design appears to be influenced to a great extent by structural steel techniques.

• **High stress in reinforcing bars**—While in England, the New York engineer met Ake Holmberg, consulting engineer, of Lund, Sweden, who told him about a novel technique employed in his country for several reinforced concrete highway bridges. Plain reinforcing bars, cold worked to increase the yield point to 100,000 psi, are being used at a working stress of 42,600 psi, without excessive cracking of the concrete.

The high stress is permitted because of the effect of cylindrical anchorages wedged on the ends of the bars. Apparently, this is not a prestressed-concrete design.

In Austria and Germany, Coff said

(*Continued on page 59*)



CANTILEVER CONSTRUCTION of prestressed concrete girders enabled falsework to be eliminated in the erection of a bridge over the Rhine at Worms, Germany, with three 350-ft spans.

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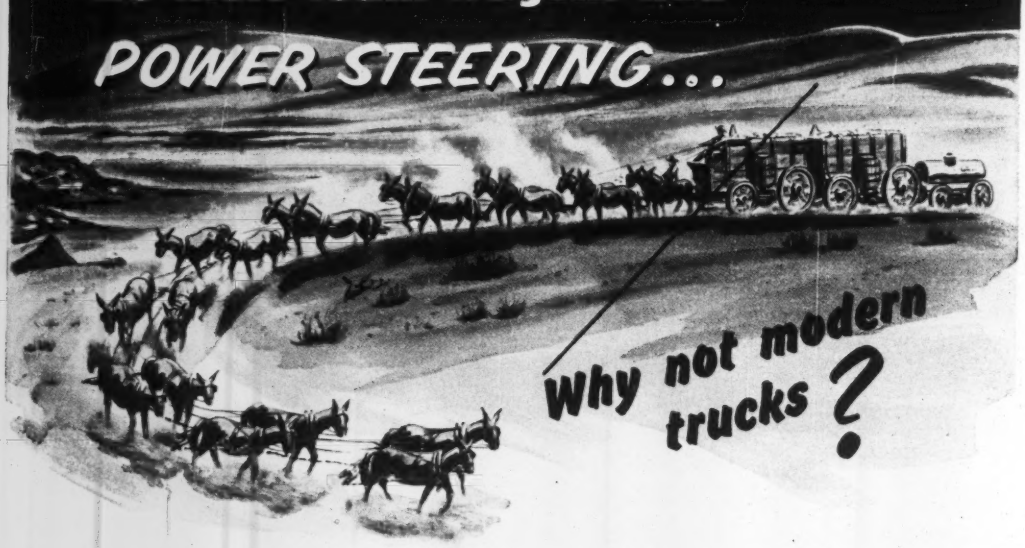

As the primitive 20-mule team wagons loaded with borax creaked their way 167 miles out of the bitter wastes and murderous heat of Death Valley, the drivers had the benefit of power steering. The mules furnished the power for steering as well as propulsion of the two 4-ton wagons. The driver only guided the mules.

Today's truck transport is generally superior in every way but one. Too often the far heavier manual steering load is on the arm, shoulder and back muscles of the driver. This tiring work slows him down, reduces his efficiency, makes him "accident-prone."

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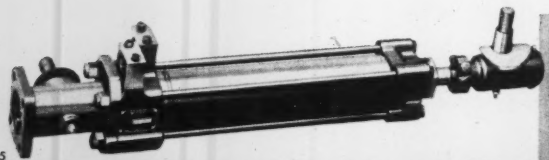

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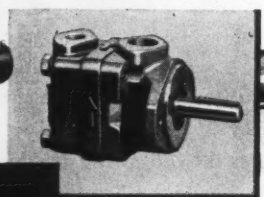

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he was astonished to find that a high percentage—perhaps 80%—of the reinforcing bars used are of cold-worked steel. Allowable unit stresses range from 28,000 to 30,000 psi.

• **Long beams from short blocks**—In Belgium he was impressed by the factory Aubert-Blaton is constructing at Charleroi under the supervision of Prof. Gustav Magnel. Continuous prestressed roof girders support prestressed precast beams with spans of more than 100 ft. Of I-shape, the beams are composed of standardized units about 10 ft long held together by the prestress.

The cables are placed alongside the web and are concreted in after being tensioned. This arrangement of the steel was chosen because it proved more economical of time and labor than incorporating the cables in the web, as has been customary.

• **Cantilever construction**—In Germany, the New York engineer also saw an ingenious construction method that eliminates falsework for long-span concrete bridges. The main girders are erected as cantilevers. Starting at the supports, the contractors, Dyckerhoff & Widmann, of Munich, cast successive sections of the girders and tied them to the previously cast portions with high-yield-point prestressing rods in watertight steel tubes that prevent them from bonding to the concrete during the prestressing operation. The rods have threaded ends, which are utilized for making splices and for end anchorage. After the concrete has attained sufficient strength, the rods are tensioned and anchored by tightening a nut on the threaded ends, which bears against a plate at the end of the girder. Then, the rods are grouted in the tubes.

Forms for the new sections are cantilevered forward on counterweighted steel beams on top of the section previously cast.

Rods are also provided to take care of the condition that exists when the cantilever sections from opposite supports are joined.

Typical of the structures built by this method are the Balduinstein Bridge with a 200-ft span over the Lahn River and the Nibelungen Worms Bridge with three spans of about 350 ft each over the Rhine. The system was originated by Ulrich Finsterwalder, managing director of the contracting firm.

• **Novel arch design**—In Portugal, on the road between Lisbon and Estoril, Mr. Coff inspected an open-spandrel

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concrete arch bridge with a 300-ft center span about 120 ft above a valley. Designed and erected under the supervision of Joao A. B. Carmond, inspector-general of the Ministry of Public Works, the structure is of interest because the deck is supported on rockers on top of the spandrel columns. This technique was adopted to prevent transmission of earthquake forces from the arch to the deck.

The bridge has been subjected to several severe earthquakes without serious damage.

• **Why prestressing gains**—While Coff did not make an actual count of the number of prestressed concrete structures built or under construction abroad, the large volume of such construction that he saw or heard about convinces him that Europeans are employing prestressing to a far greater extent than Americans. Also, on the jobs where he checked costs, he found them to be lower than for comparable structures in the U. S. The reasons for this situation, he concludes, are:

1. Contractors may either bid on standard designs submitted by an owner's consultants or submit alternative designs with their bids. (Specifications are written to enable all bids to be prepared on the same basis.) This makes possible greater competition for the job and offers an incentive for ingenuity.

2. In many cases, contractors design the structures on which they submit a bid. This, of course, must satisfy general specifications, which contain provisions for such basic items as spans of beams and girders, clearances, allowable stresses and workmanship. Thus, there is greater incentive for contractors to try new methods and materials. However, competition is restricted to designing contractors.

3. Steel is in much shorter supply than in the U. S. This makes conservation of steel an important consideration.

4. The ratio of the cost of labor to price of materials is very much in favor of techniques that save materials. Wages of a workman with productivity equal to that of a good U. S. mechanic are between ¼ and ⅛ of the corresponding U. S. wages. On the other hand, prices of materials abroad are not greatly different from those here.

• **Drawbacks**—The main reason that prestressed concrete is not used to the extent that its popularity would indicate, Coff contends, is that it is still too complicated. Another reason

(*Continued on page 62*)

Again

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2 — Fine bar screens, 1" openings.
2 — Screenings grinders, 2000# per hour each.
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5 — 12" diameter horizontal spiral conveyors.
5 — 12" diameter inclined spiral conveyors.
5 — 12" diameter inclined dewatering spiral conveyors.
5 — #9 JIGRIT washers, 280 cu. ft. per hour each.
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16 — Final tanks each 94'-6" by 81'-0" by 14'-0", each tank equipped with four main collectors and one cross collector.
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4 — Coarse bar screens, 3" openings.
4 — Fine bar screens, 1" openings.
4 — Belt feeders to grinders.
4 — Screenings grinders, 2000# per hour each.
4 — Grit channels, each equipped with two scraper collectors and one V-bucket elevator.
4 — 12" diameter horizontal spiral conveyor.
4 — #9 JIGRIT washers, 280 cu. ft. per hour each.
8 — Settling tanks each 299'-10" by 52'-0" by 12'-0", each tank equipped with three upstream and three downstream main collectors and one cross collector.
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is that techniques used are patented and only licensees can gain experience with this type of construction. Furthermore, the largest field of application is closed to it because certain technical problems have not yet been solved; engineers do not yet know how to construct multistory, multibay buildings of prestressed concrete economically. (The big hitch is the restraint offered by columns to lateral prestressing forces and volume changes.)

As a result, while more prestressed concrete structures are being built abroad than in the U. S., the total is not impressive outside of Belgium.

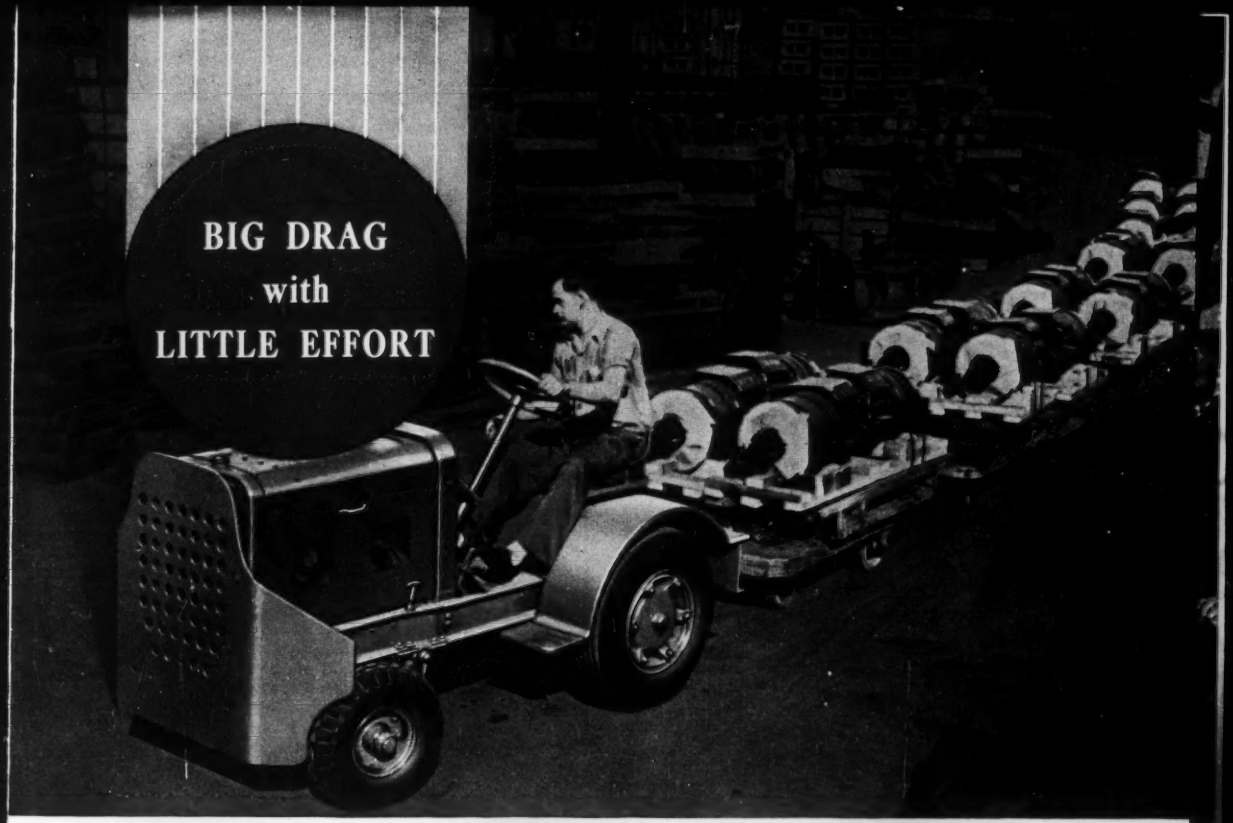
• **Prospects**—Future progress both here and abroad, Coff concludes, depends on how much erection of prestressed structures can be simplified; on whether prestressing methods can meet the traditions of U. S. building construction, instead of being precision work with slender shapes and fine wires; and on whether the technical problem of prestressing multistory, multibay buildings can be solved.

International briefs . . .

• **Plan new South African port**—South African government officials are now discussing the possibility of building a large new harbor north of Durban, to supplement the five ports which now serve the country. The proposed site is Sordwana Bay, near the Portuguese East African border. At the site, a large lake is cut off from the sea by a ridge of sand dunes, and it is proposed to cut a channel from the sea through the dunes to the lake, construct a basin 1,300 ft square with wharves on three sides. Additionally, rail links between the area and the Transvaal will connect the port with the rest of the country.

• **Australian railroad work coming**—Urgent projects on Australian railroads will cost more than $120 million—a good part of which, say government officials, will find its way to foreign builders and suppliers. Planned is conversion to standard gage in South Australia, suburban electrification and double-tracking of large sections.

• **Box girder**—Local contractors are to be invited to bid soon on the Philippines' first box-girder bridge—a 680-ft, three span structure over a branch of the Rio Grande near Cotobato, Mindanao. U. S. Bureau of Public Roads office at Manila has been responsible for design.



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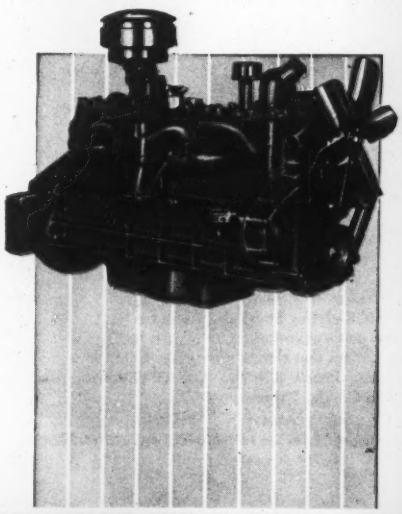

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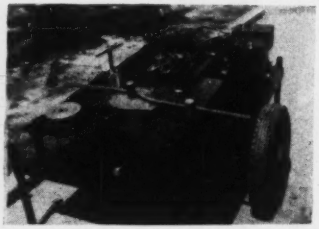

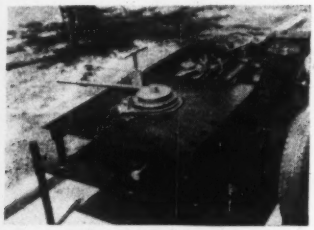

ROD BENDER is adjustable for various reinforcing designs. For instance, circular attachment on rotary disc's spindle gives a hook to one-inch round bar (right).

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Power for the disc comes through a pinion from a rack that is actuated by a 3-in. hydraulic ram with 15-in. stroke. The hydraulic pump moves 7 gallons of oil per minute, at a pressure of 1,500 psi. A control rod to the pump has notch-settings to establish ram-travel limits. These limits impart rotary motion to the disc in 5-deg increments, from 5 deg to 180 deg. When the desired angle is reached hydraulic pressure is released automatically. Two bends at a time can be put into rods up to one-inch round. Inch and a quarter rods can be given single bends up to 180 deg.

The machine is shown mounted on a trailer unit with air-cooled gasoline engine power. It also can be put on a truck, with V-belt power take-off, or it can be made stationary and powered by a 2½-hp. electric motor. Total weight, with attachment, is 500 lb.—HORACE M. SHUFF, BROOKMONT, MD.

PERSPECTIVE DRAWING DEVICE—Irving Stone, draftsman for the U. S. Corps of Engineers in Buffalo, N. Y., operates perspective-drawing device he has invented. Stylus on one down-standing arm traces a line on one elevation drawing while the other stylus holds position on the other elevation. Pencil at intersection of diagonals makes the perspective's equivalent line. (Buffalo Courier Express photo)

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THE COLORADO FUEL AND IRON CORPORATION—Abilene (Tex.) • Denver • Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa
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WICKWIRE SPENCER STEEL DIVISION—Boston • Buffalo • Chattanooga • Chicago • Detroit • Emlenton (Pa.) • New York • Philadelphia

WICKWIRE ROPE
A CF&I PRODUCT

A YELLOW TRIANGLE ON THE REEL IDENTIFIES WICKWIRE ROPE

WICKWIRE ROPE
CF&I PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

9584

You can't help a worker

(The problem of off-the-job accidents)

AMERICAN MUTUAL

Service from salaried representatives in 78 offices!
Savings from regular substantial dividends!

GROUP ACCIDENT AND HEALTH-HOSPITALIZATION . . . . WORKMENS

take a Bath!

By Mr. Friendly

A worker slips in a tub . . . and crash!
He's out for weeks and you're out *cash.*
But what can you do? You cry in wrath,
You can't help a man take a shower or bath!

You can't keep him wrapped in cotton . . . alas,
You can't keep a good man under glass.
And how many workers do you meet
Who want their hands held 'cross the street?

How can you cut down off-the-job losses?
We have a program for workers 'n bosses . . .

HOW TO PROTECT YOUR INVESTMENT IN PROTECTION

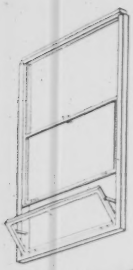
To help answer this vital off-the-job safety problem, American Mutual's Institute for Safer Living has developed the first package program of its kind designed to save lives, losses, and improve worker efficiency and morale.

To protect your workers' pay checks, help them and their families to get good medical care and pay their hospital bills, American Mutual and Mr. Friendly offer you the best in modern Group Accident and Health and Hospitalization insurance protection. For full details on this new protection-plus-service program write American Mutual Liability Insurance Company, Dept. O-116, 142 Berkeley St., Boston 16, Mass.

© 1952, AMERICAN MUTUAL LIABILITY INSURANCE COMPANY

COMPENSATION . . . . AUTOMOBILE . . . . ALL FORMS LIABILITY INSURANCE

1 Architect Philip L. Small of Small, Smith and Reeb says:
"We took this Truscon Series 138 Double-Hung Steel Window



2 *and designed it into the Case Institute of Technology Building, Cleveland, Ohio*

3 *to achieve arresting design, sunlighting of interiors, and adequate ventilation."*

Truscon Series 138 Double-Hung Steel Windows have many features offering an economical solution of architects' design problems for schools, hospitals, office buildings, and many other types of institutional, commercial and residential construction.

These windows have high structural strength, secured through the tubular steel design of the principal components. A wide range of types and sizes, including sill vents and fixed center panels are available. Hardware is of solid bronze; weatherstripping is of stainless steel; and spring balances are guaranteed for the life of the building. Unusually attractive first costs, and extremely low maintenance requirements, are other special advantages that Truscon steel construction assures you.

See "SWEET'S" for details of Truscon Series 138 Double-Hung Steel Windows, and write for free catalog showing the entire line of Truscon Windows.

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MARK OF MERIT
PRODUCTS

TRUSCON a name you can build on

TRUSCON® STEEL DIVISION
REPUBLIC STEEL CORPORATION

1064 ALBERT STREET
YOUNGSTOWN 1, OHIO

Planner leaves federal service

Howard S. Gay, chief of engineering planning, North Atlantic Division, Corps of Engineers, retired last week.

In 46 years in both the private and public phases of engineering, Gay has helped plan such projects as the St. Lawrence Seaway, construction of the Austin Dam, Tex., and electrification of the Island of St. Croix, Virgin Islands. Following his retirement he is still active in engineering planning.

As chief of planning, Gay's daily problems ranged from hydro-electric dams on the Roanoke River in Virginia to navigation and flood control projects in the New York area.

HOWARD S. GAY, chief of engineering planning, North Atlantic Division, Corps of Engineers, retired from federal service last month.

• **St. Lawrence Seaway**—His major work of planning was on the St. Lawrence Seaway and Power Project during the early 1940's. On this project he worked on plans and specifications to establish a village of 2,200 to 3,300 people; the location and relocation of highways, railroads, electric transmission lines and substations; rehabilitation of villages; location of dikes and drainage structures; and a program of construction and general plans.

During the late 1930's, Gay served on the engineering staff of the late Secretary Harold L. Ickes, Department of the Interior. He directed a board of 20 engineers and financial experts. This board reviewed and made recommendations on applications for project loans and grants involving questions of engineering and finance. Before that he served as engineer examiner for the Public Works Administration, reporting on the cost estimate and technical soundness of hundreds of loan applications.

• **Early career**—Gay first entered federal service in 1928 in the Providence District and did much of the advance flood control planning for which Congress appropriated funds to the New England area after the 1936 hurricane and floods. Since then floods of major proportions have been reduced to a minimum in the New England region.

From 1906 to 1928, Gay was a civil engineer associate in the firm of Viele, Blackwell, and Buck, consulting engineers specializing in the investigation, design and construction of hydro-electric power developments.

Gay received his civil engineer degree from Rutgers University in 1909. His professional society memberships include the ASCE and National Council on Schoolhouse Construction.

Acting project engineer named for 71-mi aqueduct

Jean R. Walton, former construction engineer at Davis Dam and power plant, has been named acting project engineer in charge of construction on the second barrel of the 71-mi-long San Diego Aqueduct.

Walton succeeds C. S. Hale, who resigned recently to accept the position of chief engineer and general manager of the Coachella Valley County Water District at Coachella, Calif. Harold B. Orr, long-time office engineer at Davis Dam, has been appointed acting construction engineer to succeed Walton on that project.

A graduate of the University of New Mexico, Walton has worked for the Santa Fe Railway, and the Bureau of Indian Affairs.

Orr, who received his BS in Civil Engineering from the Norwich University at Northfield, Vt., and took graduate work at the University of Colorado, has been associated with the Davis Dam project since December, 1941, when he was appointed office engineer to assist with initial construction activities.

("Men and Jobs" continued on p. 73)

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CURING BLANKETS
CAN BE RE-USED
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Times or More!

The Sisalkraft Method of curing concrete roads is fast, requires few men and no special equipment.

Only durable Sisalkraft Blankets insure lowest possible curing costs—and best curing results.

And Sisalkraft Blankets can be re-used 15 times or more!

Member of American Roadbuilders Assn.

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on The Sisalkraft Method of Highway Curing and Protection, Dept. ENR-12.

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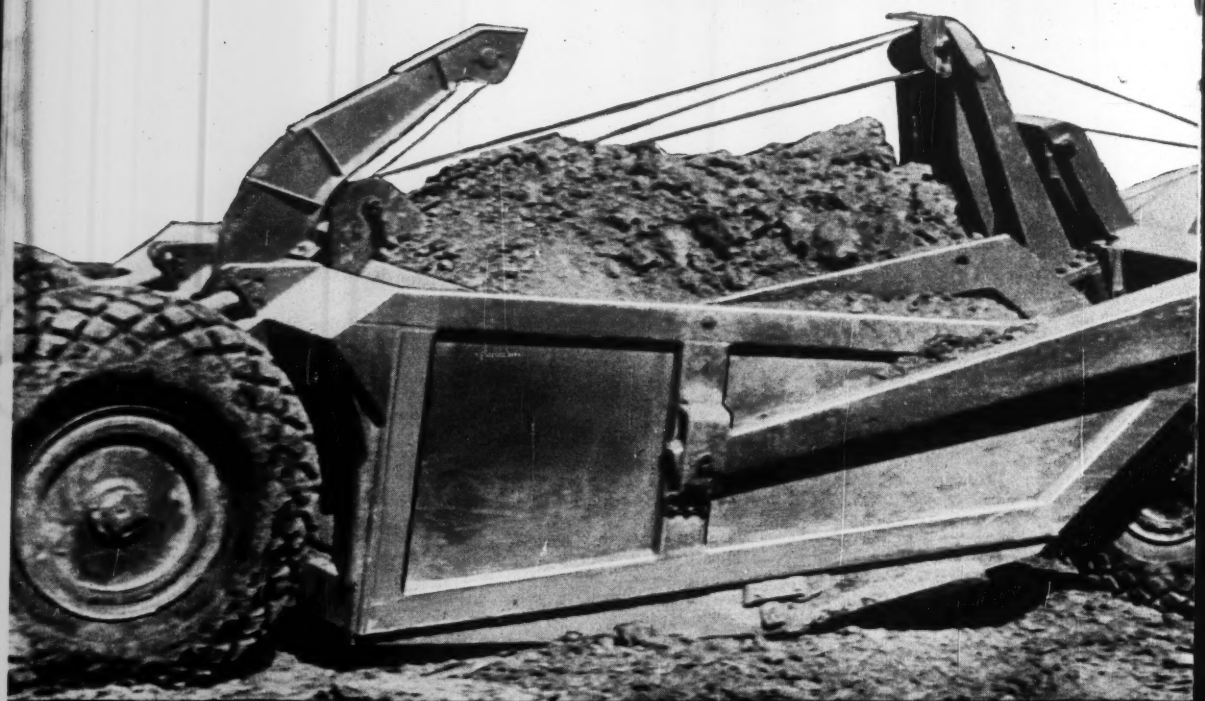
TURNS with POWER ON BOTH TRACKS

SWINGS FULL LOAD WITH THE GREATEST OF EASE—a tight turn with a lift gives the TD-24 a chance to show off its power.



International Steering system helps "Big Red" —the TD-24—do more work in less time

What's the pay-off for a crawler tractor?

The most work done per day.

What delivers the pay-off?

Superior speed and power—and fingertip steering to take advantage of that speed and power. Like this:

The operator of your Big Red TD-24 drops one track into low speed, and the huge crawler comes around, moving right along with its load, turning with power on both tracks!

The TD-24 makes gradual turns with power on both tracks, feathered turns of any degree, or pivot-turns—all with fingertip ease of control. Planet Power Steering lets the operator turn while pulling heavy loads and also maneuver in close quarters. That's why the TD-24 is the most versatile of all crawlers.

Add this to the TD-24's tremendous power —more drawbar horsepower than any other crawler on the market—and you get what you want: more dirt moved, more work done per day.

Isn't that reason enough to put the TD-24 to work for you? Especially when it's backed by your International Industrial Distributor's complete service facilities. Get the details . . . you'll be a TD-24 man from then on in!

INTERNATIONAL HARVESTER COMPANY
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POWER THAT PAYS

TIGHT TURN WITH A BIG SCRAPER. "Big Red"—the International TD-24—pulls a big 25-yard scraper with a full load in close quarters on a road relocation job.

ADJUSTABLE PIPE HANGERS AND SUPPORTS

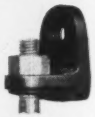
for every piping requirement

NO. 4 OF A SERIES SHOWING THE GRINNELL LINE

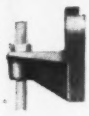
BRACKETS, HOOKS, CLAMPS for attachment to walls, columns and beams

Light Welded Steel Bracket
fig. 194
max. load: 750 lb.

Medium Welded Steel Bracket
fig. 195, max. load: 1500 lb.
heavy welded steel bracket
fig. 199, max. load: 3000 lb.



Side Beam Bracket
fig. 202
load: 150 to 2300 lb.



Side Column Bracket
fig. 203
load: 150 to 390 lb.

Cast Iron Bracket
fig. 223
load: 610 lb.

Cantilever Bracket
fig. 221
with angle iron ext.
fig. 222

Single Hook
fig. 168
½ to 3 IPS

One Hole Clamp
fig. 126
⅜ to 4 IPS

FLANGES, CLIPS, HOOKS for attachment to the ceiling

Adj. Swinging Hanger Flange
fig. 155, for ⅜ to ⅞ in. rod
flange only
fig. 156, for ¾ to 12 in. pipe

Swivel Hanger Flange
fig. 154
for ⅜ to ⅞ in. rod

Pipe Hanger Flange
fig. 153
for ⅜ to ⅞ in. rod

Ceiling Flange
fig. 128
for ⅛ to ¾ IPS

Adj. Clip Base
fig. 116
for ¾ to 2 in. pipe
⅜ in. rod size

Wrought Clip, Long
fig. 263
short: fig. 262
½ to 4 in. pipe

Tin Clip
fig. 231
¼ to 2 in.

U Hook
fig. 205
¾ to 8 in. pipe

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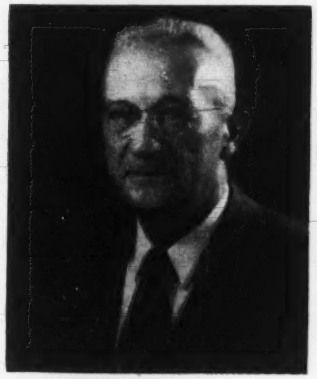
Manufacturer of: pipe fittings • welding fittings • forged steel flanges • steel nipples • engineered pipe hangers and supports
Thermolier unit heaters • Grinnell-Saunders diaphragm valves • prefabricated piping • Grinnell automatic fire protection systems



JAMES SPOFFORD, retiring from active service with Bureau of Reclamation at the age of 70.

Minidoka project head to retire soon

Ending 11 years of administrative and engineering work with the Bureau of Reclamation in Idaho and Oregon, James F. Spofford, superintendent of the Minidoka Project, will retire on Dec. 20.

Spofford has been superintendent of the project since the fall of 1949. Before that he served almost six years as irrigation manager of the 100,000-acre Owyhee Project (Oregon-Idaho). The Minidoka Project provides a full or partial supply of water to 1,000,000 acres in the Snake River Valley (Oregon-Idaho).

Spofford joined the BR in 1941 as associate engineer in the Denver, Colo., engineering headquarters. From Jan., 1943, to Feb., 1944, he was State Reclamation Engineer for Idaho, a job he also held (1939-40) when the title was Commissioner of Reclamation for the state of Idaho.

Previous to holding these positions, Spofford served as secretary-manager of the Mountain Home Irrigation District; U. S. Surveyor with the General Land Office; operator of a 320-acre irrigated ranch; manager-treasurer of the Grand View Irrigation District, Grand View, Idaho; land appraiser for the Federal Land Bank; and consulting engineer for the Idaho State Water Conservation Board. He holds a civil engineering degree from the University of Michigan. He is a member of the Idaho Society of Engineers and the ASCE.

He has said that he will maintain his interest in Idaho water problems and may return to active engineering after his retirement.

Black gets finance post for Gunnison Homes, Inc.

Harry R. Black has been appointed executive assistant to John J. O'Brien, president of U. S. Steel's Gunnison Homes, Inc.

Black will act as advisor in transactions affecting interim and long-term mortgage financing and also coordinate financing problems among the company's 350 dealers as well as with local banks, the Federal Housing Administration, Veterans Administration and other lenders.

He served as mortgage officer and construction loan analyst of the Malden Savings Bank in Malden, Mass., for 11 years before joining Gunnison Homes.

Careers . . .

• **Appointed—Herbert Ensz** has become a structural project engineer for Ebasco Services Inc., with headquarters in New York. Since 1947 he had held a similar post with Sargent and Lundy in Chicago, going there after eight years as head of the testing and inspection division of the Chicago Department of Subways and superhighways and 11 years as professor of civil engineering at Armour Institute of Technology. . .

Frederick W. Argue has been appointed assistant engineering manager of the Stone and Webster Engineering Corp., Boston, Mass., following a decade of engineering teaching, he joined Stone and Webster in 1941 and has been assistant power engineer since 1948. . . District Sanitary Engineer in charge of a new 17-county Piedmont Sanitary District in North Carolina, will be **Joseph S. Amen** of Asheville, N. C.

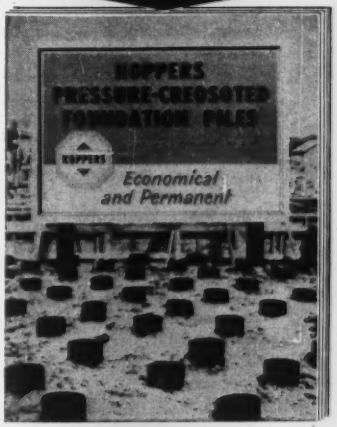
McAndrew McCall has been named chief design engineer, construction department, machinery division, Dravo Corp., Pittsburgh, Pa. . . **F. W. Clayton**, California civil engineer, has been selected to head the Bakersfield, Calif., building department. This department is being reorganized as a result of the recent earthquakes. Clayton's most recent job has been as supervising engineer for Knappen, Tippetts, Abbett and McCarthy on Mingaladon aerodrome construction in Rangoon, Burma.

The Pennsylvania Turnpike Commission announced the creation of two new executive positions. **John D. Paul**, former assistant chief engineer, was appointed assistant chief engineer in charge of construction. **John P. Sims**,

(Continued on page 76)

VALUABLE MANUAL

Shows how creosoted timber piles save money . . . assure permanent foundations



Here's a book every engineer should have. It's filled with interesting facts. Graphic descriptions. Photographs of modern construction projects, large and small, that are founded on pressure-creosoted piles.

An interesting book, yes—but informative, too. Case histories tell how substantial savings have been effected and unusual construction problems have been solved by founding permanent structures on creosoted timber piles.

You'll find this book a valuable reference. Send for a copy today. There's no obligation involved.

KOPPERS COMPANY, INC., Pittsburgh 19, Pa.

KOPPERS PRESSURE-TREATED WOOD

Here's a new concept in light-weight

Engineered weight

designed to give you

PRECISION BUILT, two-compartment water tank assures accurate water measurement—even when mixer is not level.

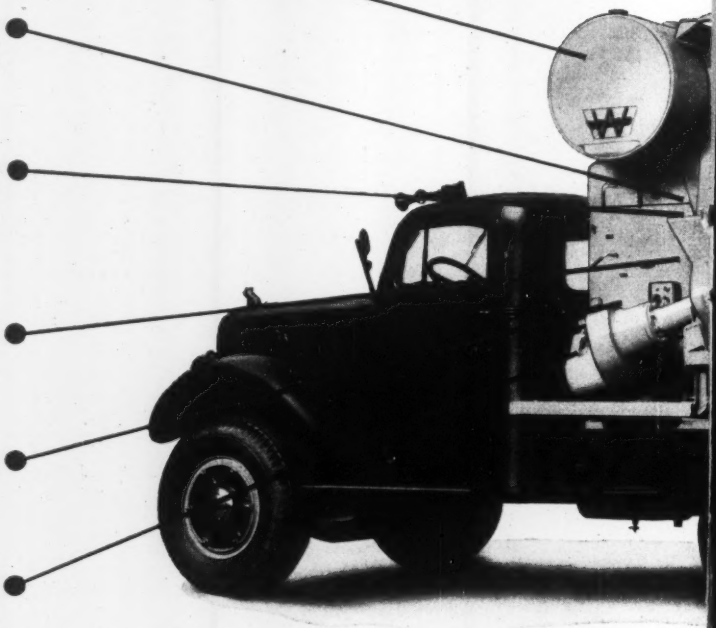
SPECIAL STEEL DRUM SPROCKET of unusually large diameter reduces torque, minimizes effects of starting and stopping with heavy loads.

DRUM SPROCKET SEAT, tire and drip ring end are machined *after* all welding is completed—thus eliminating possibility of heat distortion. Drum runs absolutely true.

WORTHINGTON-DESIGNED Timken-equipped trunnion bearing offers maximum flexibility.

HIGH CAPACITY, double V-belt-driven Worthington water pump, equipped with efficient disc-type clutch.

HEAVY-DUTY TRANSMISSION is designed and built by Worthington. Forward and reverse clutches and brake are completely enclosed and run in oil. Single lever operation.



The new Blue Brute Truck Mixers are the product of nearly a century of mixer building experience.

Weight distribution has been engineered so that the center of gravity is well forward of the rear axle—enabling you to carry the maximum legal payload.

Rigid field and factory tests assure you of trouble-free operation and easy maintenance—with all parts requiring maintenance readily accessible.

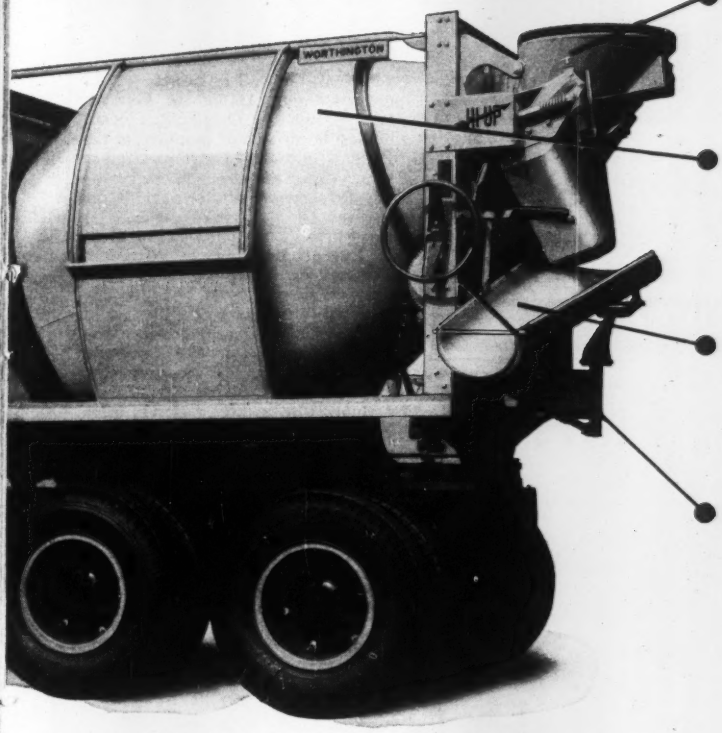
The modern Blue Brute is available in capacities of 3, 4½, and 5½ cubic yards, with respective agitator ratings of 4¼, 6⅛, and 7⅜ cubic yards.

Learn more about the new Blue Brute—the truck mixer that is the ideal combination of light weight, strength, and durability. Write your nearest Worthington Blue Brute distributor or Worthington Corporation, Construction Equipment Division, Plainfield, New Jersey.

truck mixers . . .

distribution—

maximum legal payloads



FAST CHARGING HOPPER is equipped with the simplest, easiest to operate control available—no chains, worms or sprockets.

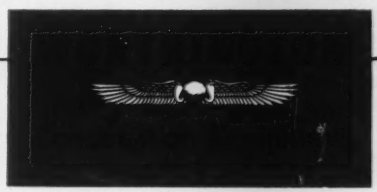
AUTOMATICALLY WELDED, overlapping drum joints for greater strength at drum seams.

LIGHT-WEIGHT, STRONG, die-formed distributing chute is shaped to permit unobstructed flow of concrete.

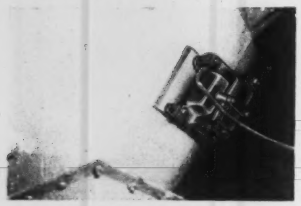
CHILLED-FACE DRUM ROLLERS are self-cleaning and thoroughly sealed against dirt. High-carbon, deep section drum tire is automatically welded to drum.

FULLY EQUIPPED, the 4½ cu yd closed end Blue Brute truck mixer weighs less than 6800 lbs. The open end mixer (same capacity) weighs less than 6200 lbs.

R.2.4



If It's A Construction Job, It's A *BLUE BRUTE* Job



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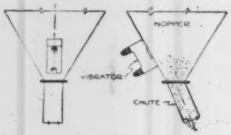
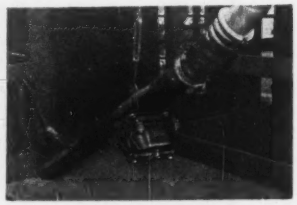
ELECTRIC VIBRATORS

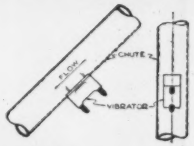
Assures Free-Flowing Bins, Hoppers and Chutes





Now, Syntron presents a complete line of Semi-Noiseless Electric Vibrators for use in installations located close to workers where noise is a major factor.

They operate the same as standard Syntron Vibrators—assure a smooth, controlled flow of material—prevent loss of costly time due to material coming 'short' on dependent operations and prevent loss of materials due to 'surges'. New 'cushion' action provides a sharp reduction in the operating noise.



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Here is the popular small lightweight model Crescent scraper bucket used for ordinary excavating. Crescents are built in four other models and fifteen sizes ranging from ⅓ to 15 cu. yd.

◊ ◊ ◊

On thousands of earthmoving jobs, Sauerman Scraper machines equipped with the unique Crescent bottomless bucket, are cutting costs in digging, hauling and dumping almost every kind of material.

A "Crescent" penetrates tough materials with ease, gets a full load quickly, hauls this load at average speed of 400 f.p.m.—all with economical use of power. And it dumps automatically at end of haul.

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SAUERMAN BROS., INC.

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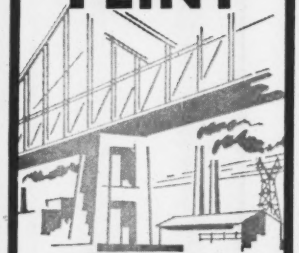
FLINT



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- BUILDINGS
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FLINT STEEL CORPORATION

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TULSA, OKLAHOMA

MEN AND JOBS

former division construction engineer, was named principal assistant engineer in charge of construction. . . **William H. Dutelle** was appointed engineer of local roads and streets in the Illinois State Division of Highways.

Willard F. Shepard, Lansing, Mich., chief of the sewerage and sewage disposal work for the State Health Department, has been appointed director of engineering to succeed **John M. Helper** who resigned after 34 years of service. . . The appointment of the engineering firm of Linenthal and Becker, Boston, Mass., as consulting engineers to Brandeis University was announced by university officials.

• **Elected—Curtis M. Everts, Jr.,** director of the Division of Environmental Sanitation, Oregon State Board of Health, was elected president of the Pacific Northwest Sewage and Industrial Wastes Assn. at the end of a four-day convention in Portland, Ore., last month. . . New president of the Midsouth section of the ASCE is **Eugene Bespalow** of Memphis, Tenn. . . The J. A. Jones Construction Co., of Charlotte, N. C., has announced the election of a number of new officers: **J. Frank Hodges** of San Salvador, and **F. J. C. Dresser** of Washington, D. C., vice-presidents; **Edwin L. Jones, Jr.,** secretary. **Edwin L. Jones, Sr.,** has been reelected president and **Emil J. Kratt,** executive vice-president.

• **Honored—Arnold Gottlieb,** vice-president of Gotham Construction Corp., New York City, will be honored for his 50 years of work by his associates at a luncheon in December. . . For his services in Korea, **Col. Henry G. Douglas,** engineer inspector-general, was presented with the Legion of Merit Medal at ceremonies in San Francisco two weeks ago.

• **Resigned—Maj. Gen. Robert W. Crawford** (U. S. Army Retired) resigned last week as executive vice-president of the Mississippi Valley Flood Control Association after three years in that post. He probably will become a senior executive of the Foundation Company of New York. . . Explaining that his action was prompted by "irreconcilable differences at the executive level," **W. J. Van Arnam,** president of Timber Structures, Inc., Portland, Ore., has resigned. . . . About 460 members of the Westchester, N. Y., County chapter, State Society of Professional Engineers, paid tribute to **Chester A. Garfield,** retiring chief engineer of the county department of public works, at a testimonial dinner.

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FREE SURVEY: A **RUST-OLEUM** specialist will gladly survey your rust problems. He'll make specific tests and recommendations. No cost or obligation. See Sweets for complete catalog and nearest **RUST-OLEUM** distributor, or write for literature on your company letterhead.

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RUST-OLEUM
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Men who depend on power... know they can depend on CUMMINS®

Every CUMMINS DIESEL is built not once but twice

Construction men in the field have learned to count on Cummins Diesels for dependable power day in, day out.

What's behind this consistent reliability? One good reason is the fact that every Cummins Diesel is actually built *twice*. After initial assembly, and run-in testing, every engine is disassembled, inspected; then reassembled and tested again.

This extra care—together with Cummins' economy-proved fuel system and efficient parts and service organization—makes lightweight, high-speed (50-550 h.p.) Cummins Diesels a wise first choice *for men who depend on power.*

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Leaders in lightweight, high-speed diesel power!

OBITUARIES

Webster L. Benham, 70, civil engineer, died in Oklahoma City, Nov. 22. As city engineer or consultant, he had put his mark on practically every major municipal construction project in Oklahoma City since 1906. Most recently he was consulting engineer on the $9-million sewer project voted in 1946. He was assistant city engineer in 1907 and 1908 in charge of design and supervision of paving, waterworks, sanitary and storm sewers. During World War I he was Army construction officer at Camp Funston, Kan. Later he was made supervising utilities officer for 12 major camps in the Southwest. In 1925, he received the Award of Merit from the American Association of Engineers for the most distinguished service to the engineering profession during the year 1924. He served as national director of the American Association of Engineers from 1919 to 1923, and was elected president of that group in 1923.

Edward G. Switalski, 51, secretary and vice-president of Switalski, Inc., paving contractors of Milwaukee, Wis., died Nov. 21. He had spent 35 years in the paving business.

Don C. Wallace, 62, owner of the Wallace Construction Co., Akron, Ohio, for 25 years, died Nov. 25.

Jerome E. Wilhelm, 78, retired bridge engineer who served as a consultant in the erection of the Ambassador Bridge at Detroit, died Nov. 26 in Traverse City, Mich. He was a graduate of the University of Pennsylvania, and built some of the largest bridges over the Mississippi and Missouri rivers, as well as in several Michigan cities.

John H. Feigel, 71, former assistant city engineer in Buffalo, N. Y., died Nov. 26. He received his engineering degree from the University of Pennsylvania. While assistant city engineer of Buffalo he laid out the first hard surface airstrip for Buffalo Municipal Airport.

William E. Robertson, 86, a pioneer civil engineer, died in El Paso, Tex., Nov. 10. He founded the El Paso Bridge and Iron Co. and was president of the Virginia Bridge and Iron Co., now a subsidiary of the United States Steel Corp. He was an authority on water supply. The $1-million Rio Grande water treatment plant was named in his honor.

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• Those big stones won't slip from the Wellman Stone Grab. Four-part closing cable reeving develops tremendous closing force on stones. Model shown has 5-ton capacity, 4½ foot jaw spread. Other capacities available.

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Where the Pennsylvania and Ohio Turnpikes will join

PROBLEM: Forms that guarantee meeting the most rigid inspections ever encountered on paving construction.

ANSWER: Heltzel steel forms because they are rigid and joint-locked to carry heaviest equipment without wobble. They last for job after job of rugged use.

FIVE RIGID SUPPORTS PER FORM
Only Heltzel makes a form with five positive and rigid tread supports per form. The three stake pockets are welded to the lip of the tread and the upturned base flange. At each end, the sliding joint lock bolsters the joint.

UPTURNED FLANGE
Only Heltzel provides 50% extra strength with each form, by incorporating the upturned flange as standard design.

EXCLUSIVE STAKE POCKETS
Only Heltzel makes this wide protected-type stake pocket for sure-grip wedging, and rigid support of the tread.

STAKES
Only Heltzel makes stakes from rerolled rail material with hot forged points.

WIDE TREAD
Heltzel makes a form with 2½" tread for greater traction, and for the greatest rigidity and strength.

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Only Heltzel makes a joint lock, hot pressed from ¼" plate, with driving ears projecting 3½" from the form.

The Heltzel Steel Form & Iron Company
Construction Equipment Since 1910
WARREN, OHIO
Flex-Plane

OBITUARIES

C. W. J. Neville, 72, civil engineer, a graduate of Cornell University, died in New Orleans, La., Nov. 4. He had his own engineering and contracting firm until his retirement 10 years ago.

H. Edwin Bush, 63, municipal engineer of Plainfield, N. J. died Nov. 20. His prior services included assistant town engineer of Westfield from 1912 to 1917 and resident engineer of the U. S. ship-building project at Port Jefferson, N. Y. He was a graduate of Rutgers University.

Harold A. Reed, 53, Cleveland, Ohio, regional engineer for the Geodetics Survey, died at Cleveland, Nov. 26. In earlier years, Mr. Reed worked for the city of Coral Gables, Fla., for Cuyahoga County, Ohio, and for the city of Cleveland in making surveys for roads, bridges and other public projects. He took courses at Case Institute of Technology.

Homer P. Brown, 75, of Placerville, Calif., former member of the California State Highway Commission, died in San Francisco Nov. 24. He resigned from the commission Oct. 26, 1951, due to illness. He had served on the commission, which allocates highway funds in California, for eight years.

George B. Springer, 85, civil engineer for nearly 35 years with the Commonwealth Edison Co. until his retirement in 1930, died in Chicago on Nov. 30. When he retired, he was supervisor of inspectors for underground installations.

Evaporators begin work on sulphite liquor waste

A million-dollar plant to concentrate sulphite liquor wastes has been unveiled by Rhinelander Paper Co. in Rhinelander, Wis. Company President Folke Becker predicted at the unveiling that the upper 125 miles of the Wisconsin River would flow free of sulphite pollution for the first time in 50 years.

Stainless-steel, multiple effect evaporators developed in Sweden do the job. Of 90 tons of waste sulphite produced by the mill daily, over 60 tons are recovered. Some ten tons of the amount recovered (mostly lignin and sugar) are converted in a yeast plant into a livestock vitamin supplement. The other 50 tons will go to the new evaporators for concentration, then can be burned or dried for by-product uses (from road-binder to paper tape). Only a dilute wash water will be discharged to streams.

95% of your yardage can now be handled with machines completely lubricated by just 3 Shell products*

***SHELL RETINAX A GREASE** . . . a superior new multi-purpose grease for all types of heavy-duty automotive vehicles. It does the job of four or more specialized greases—yet only one gun is required.

Recommended for chassis (*all points*), wheel bearings, universal joints, and water pumps. Shell Retinax A gives you better protection against wear and washing out.

***SHELL SPIRAX EP†** . . . an exceptional "alloy type," Extreme Pressure gear oil. Shell Spirax EP is recommended for rear axles of the hypoid, spiral bevel, and spur gear types, as well as for heavy-duty transmissions. It is extremely stable . . . has long-lasting anti-rust and film strength properties. Results: longer gear life, lower maintenance costs.

***SHELL ROTELLA OIL** . . . for all engine lubrication, Shell Rotella Oil is a new, fortified, extra heavy-duty lubricant which has set new standards of performance in high-speed diesel and heavy-duty gasoline engines.

By maintaining clean engines and minimizing sludge formation, piston lacquering, ring and valve sticking, and port clogging, Shell Rotella Oil extends periods between overhauls, reduces parts replacement costs, and gives you reduced oil consumption.

†Some manufacturers recommend a straight mineral oil for gear lubrication. Your Shell Lubrication Engineer will suggest the proper lubricant in such cases.

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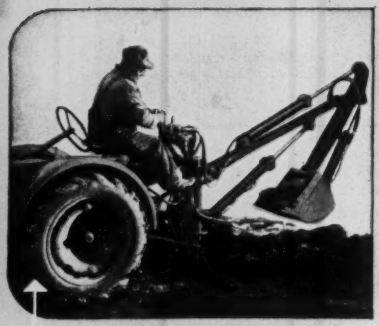

Hydraulically-operated Back Hoe — Tractor-compresser-back hoe combination offers big savings on digging jobs too small for power shovels, too big to be done economically by hand labor. Bucket sizes, 12" to 22". Digging depth, 6' to 7'. Swing, 60° each side of center.

Le Roi-CLEVELAND Patcher mounts on rear platform of Tractair. Drills closely-spaced holes within 7-foot radius, then breaches the section of pavement loose for easy removal. On this job, the bricks were removed first to get to the pavement underneath.

Pavement Breaking — Tractair puts air power to work running Le Roi-CLEVELAND Breakers. When the breaking job is done, Tractair mops up with its front-end loader. Tractair can be used also to run Le Roi-CLEVELAND sinker drills, clay spades, backfill tampers.

with Mobildrill

on railroad siding job gives more than twice former footage for less than half equipment cost

As much as 750 feet of hole daily, where only 300 feet were drilled before! More than double the production of three hand-held sinkers and a 315 cfm compressor! Substantial savings on both fuel and equipment costs! That's the remarkable record of a Le Roi Tractair Mobildrill on the Coal River Mining Company's development of a railroad siding at their strip mine in Nellis, West Virginia.

Tractair Mobildrill is a light-weight Le Roi-CLEVELAND wagon drill unit mounted on Tractair — a combination 35-hp tractor and 105-cfm compressor. One man can drive the Tractair Mobildrill and handle every phase of drilling — vertical and horizontal holes at any angle and any elevation up to 12'. Swinging boom permits drilling 4-6 holes of a pattern from one spot.

The Mobildrill attachment is just one example of how Tractair's versatility pays off in lower costs and minimum investment in special equipment. The usefulness of Tractair can be multiplied by using Le Roi-CLEVELAND air tools for breaking pavement, clay digging, tamping fill. Tractair also can be used for loading, lifting, backfilling, snow-plowing, etc., when equipped with a front-end loader and special attachments.

Prove this to yourself. Watch a Tractair at work. Make arrangements with your nearby Le Roi distributor. Write today for job-data sheets and bulletins on Tractair.

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T-30

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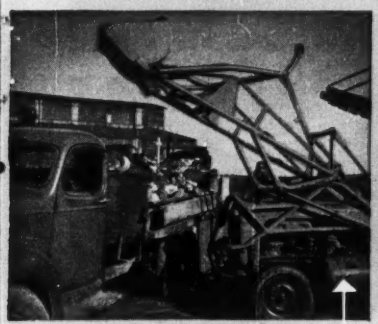


Loading — Front-end loader can be attached to Tractair in only a few minutes. Boom combines bucket and crane. Crane folds back out of way when not in use. Bucket holds 10½ cu. ft. — lifting capacity is 1000 lbs. Lifting capacity of crane is 800 lbs.

Backfilling — Replacing the bucket on the loader with a backfill blade adds to the variety of jobs a Tractair can handle. Backfill blade is 6' wide, mold board is 2'8" high. Maximum lift above ground is 1'4".

Tree-Jax — A Le Roi-CLEVELAND air-feed sinker drill mounted on a Tractair. Feeding and drilling controls are within easy reach of operator. The mobility of this unit makes it ideal for mud-jacking and many other applications.

By-passing Sherman Hill grade

How a relocation job on the U.P. will speed west-bound rail traffic

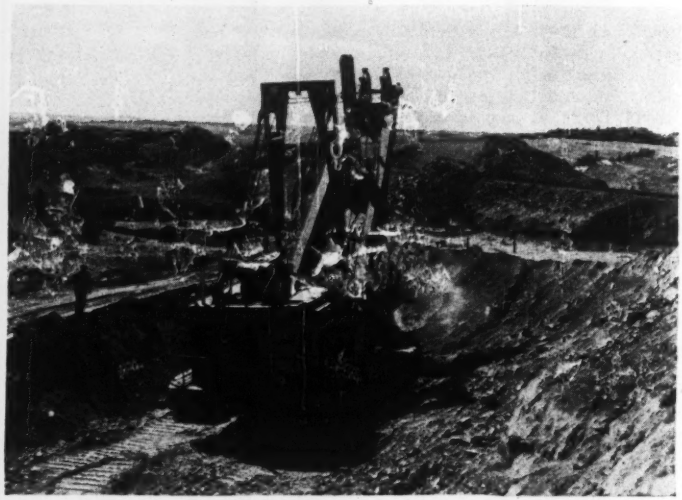
For years the Union Pacific's long grade over 8,014-foot Sherman Hill in southeastern Wyoming has been known as an engine-killer. It was to boost trains up that slope west of Cheyenne that U. P. built the famous "Big Boy" locomotives. Now the mighty helper engines are headed for the same fate as the buffalo. A new 42-mile main line, with easier grades, is being built to the south.

Railroad relocation accounts for a considerable share of U. S. construction right now. It is a natural consequence of the swing to Diesel locomotives—longer trains—longer passing tracks. The roads are doing some of this work with their own off-track equipment. In other cases, where more earthmoving must be done, construction firms are being called in. The Union Pacific project is probably the biggest of the lot. It will cost $16,000,000 and involves the moving of 2,500,000 yards of rock, 4,000,000 yards of earth.

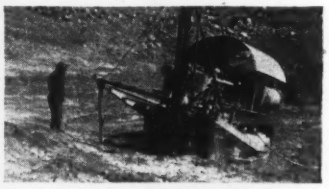
When the two-year job is finished, the U. P. expects to cut 15 minutes from its west-bound running time and use main line locomotives all the way through.

The contractors, Morrison-Knudsen Company, Inc., have assembled a big array of "Caterpillar" equipment on this job. "Cat" Diesel Engines power the shovels and compressors. Big yellow D8 Tractors, Bulldozers and Scrapers handle the shorter hauls. And speedy "Caterpillar" DW20 wheel-type Tractors, with No. 20 Scrapers, make eight round trips per hour over a one-mile haul distance.

These machines are constructing 111 major fills, up to 164 feet in height; installing hundreds of drainage culverts; and blasting through solid red granite to make cuts, one of them 140 feet deep and requiring the removal of 350,000 cubic yards of rock.



A "Cat" Diesel D397 Engine provides the lugging power for this Manitowoc 5-yard shovel, making a cut for the new U. P. main line near Sherman Hill, Wyoming.



Worthington compressors, mounted on sturdy "Caterpillar" D8 Tractors, drill blast holes in rock for Morrison-Knudsen Co., Inc.

Morrison-Knudsen's reputation for putting big contracts through on time has a solid foundation in the tough, dependable "Caterpillar" machines that make up such a large proportion of the firm's equipment.

One of Morrison-Knudsen's big, husky yellow "Caterpillar" DW20s and No. 20 Scrapers picks up a 20-yard load for a fast run to the fill.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

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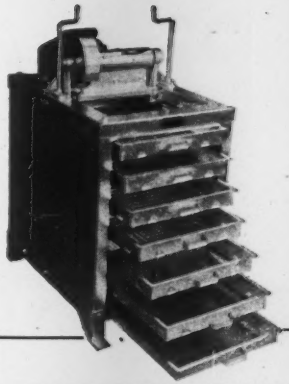

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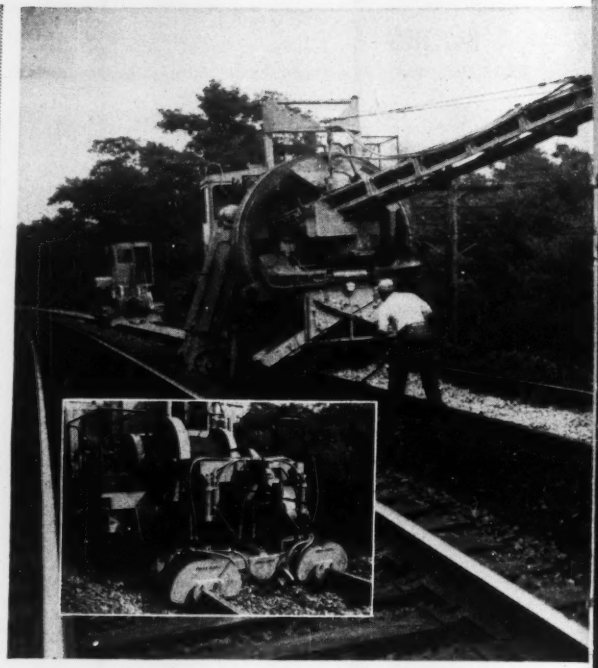
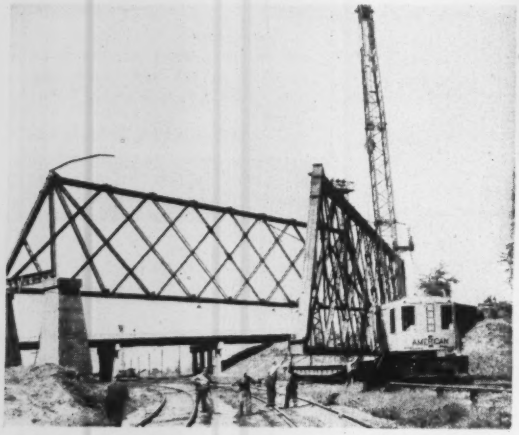
Pictures from Industry

These are excerpts from stories in the current issue of American Hoist & Derrick Company's house magazine, the American Crosby Clipper. If your business involves the use of hoists, derricks, locomotive cranes, revolver cranes, Crosby Clips or other equipment in our line, why not let us put your name on the mailing list. Use coupon on right hand page, to start with the current issue.



Walking dragline goes amphibious. Chewing a 50-foot channel through the marshy delta 100 miles out of New Orleans is a 6-yard dragline mounted on the spud barge *A. H. Stall.* Spuds are 40-foot vertical steel shafts that anchor barge to bottom . . . and it takes a 20,000 lb. pull by an American 3-drum hoist to lift each spud when barge is moved. The job is a fresh water reservoir project for Freeport Sulphur Co.

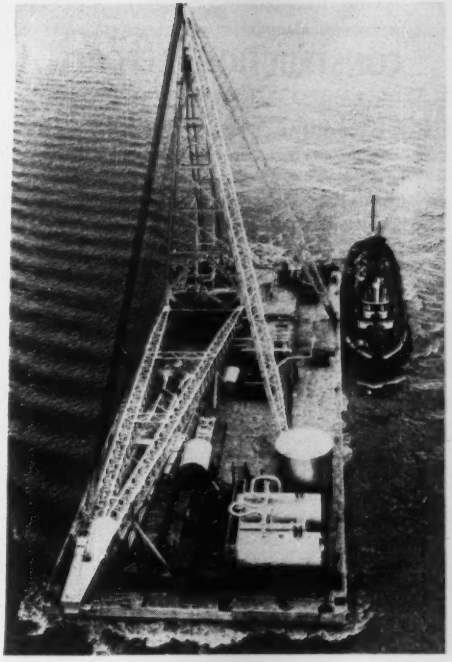


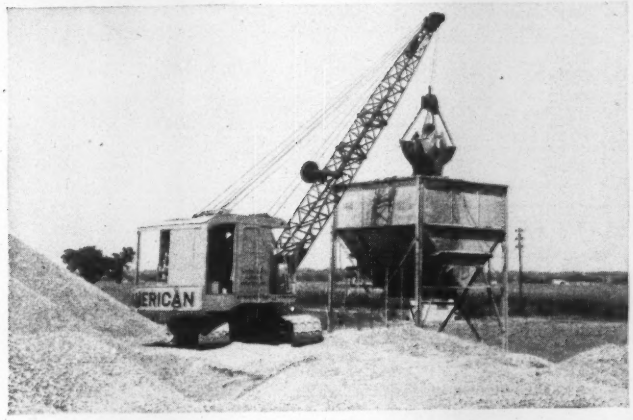
Scratch one bridge. Celebrating its hundredth birthday with a show of ultra-modern railroading, the Rock Island recently made a bridge vanish in a hurry. Using an American DiesELectric Locomotive Crane, they cut the bridge into 40,000 lb. sections, set them aside for dismantling. The job was done with minimum interruption of traffic, and made possible elimination of a curve at entrance to the Silvis, Illinois yards.

The AMERICAN HOIST line includes: Hoists • Derricks • Locomotive Cranes • Crawler Cranes • Truck Mounted Cranes • Revolver Cranes • Roofers Hoist

How Pullman-Standard makes a bed. Digging up, cleaning and relaying roadbed ballast on the New Haven at a rate of 1250 feet an hour, this new Pullman-Standard Power Ballast Cleaner needs only three men. Inset shows winch car, powered with an American Drum Type Car Puller. Anchored to the rails while winching, it has 60,000 pound drawbar pull to drag the Cleaner along.

Sea-going skyscraper. Perhaps the tallest structure on the seven seas is Construction Barge No. C-4, owned by Creole Petroleum Co. The derrick, built by American Hoist, has a towering 175-foot boom, and is powered by an American steam hoist with 40,000 lbs. single line pull. The big job for Barge C-4 will be driving 200-ton concrete pilings into bottom of Lake Maracaibo, fabulous Venezuelan oil field.





Keefner makes the gravel fly. Just south of Des Moines, Iowa, a dredge owned by Joe Keefner sucks gravel off the bottom of a water filled pit. Material is then pumped ashore to be crushed, washed and screened, for use in concrete aggregate. To match the high speed and smart efficiency of other operations, Keefner bought this new American 375 Crawler Crane for loading hoppers. Remarkable smoothness and effortless control of the crane, resulting from lavish use of anti-friction bearings, helps keep gravel moving at a record clip.

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Bids Asked—Low Bidders—Contracts Awarded—First Section

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ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

Conn., Milford—B.A. 12/15—Town, Town Hall, Contract 4, outfall sewers, 5,500 lin. ft. 24 in. rein.-con. pipe, appurtenant work. Plans deposit $25. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., engrs. CD 12/19/50.

† **N. H., Portsmouth**—RUNWAY—B.A. On Or About 1/23—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., runways, taxiways, aprons, aircraft fueling sys., Portsmouth Air Force Base, ENG 19-016-53-6. Bids Sept. 30 postponed CD 9/12.

BIDS ASKED—BUILDINGS

† **Mass., Springfield**—BUILDING IMPRVS.—B.A. On Or About 12/19—U. S. Eng., 857 Commonwealth Ave., Boston, Zone 15, concrete floor slabs in Bldg. 19, Springfield Armory, Eng. 19-016-53-52. CD 11/21.

▲ **Mass., Boston** — HOUSING — B.A. 12/19 — Boston Housing Auth., 230 Congress St., 732 housing units, Bromley Park, Roxbury, Proj. Mass. 2-19. $10,250,000. Plans deposit $100, refundable. Thomas F. McDonough, 25 Huntington Ave., archt. CD 7/29/52.

Mass., Danvers—ADMINISTRATION—B.A. 12/19—State, Dpt. Mental Health, 15 Ashburton Pl., Boston, Admin. Bldg., A and J Bldgs. alterations, State Hospital, P-M 41. $544,000. Plans deposit $40, refundable. John Guarino, 2 Lexington St., East Boston, archt. Cleverdon, Varney & Pike, 120 Tremont St., Boston, struct. engrs.

▲ **Mass., Brockton**—HOUSING—B.A. 12/29—Brockton Housing Auth., 164 Richmond St., 100 housing units, Proj. 24-1. $1,000,000. Plans deposit $50, refundable. Emery J. Laliberte, 226 Main St., Brockton, archt., and Arthur R. Murphy, 231 Main St., Brockton, assoc. archt. CD 12/17/51.

▲ **Mass., Somerville**—HOUSING—B.A. 12/31—Somerville Housing Auth., 30 Memorial Rd., 348 housing units, Mystic Ave., Proj. PHA 31-1. $3,500,000. Plans deposit $75, refundable. M. A. Dyer Co., 24 School St., Boston, archt. CD 7/28/52.

† **R. I., Warren**—ARMORY—B.A. About 1/9—U. S. Property & Disbursing Officer, 51 Stenton St., Providence, 1 story, 103x136 ft. brick, steel armory, utilities, parking, between Market and Wood Sts., Inv. ENG-37-019-52-8. Plans deposit $10. CD 11/12.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **U. S. Eng.,** 857 Commonwealth Ave., Boston, Mass. cancelled bids to have been opened Nov. 14, field office, Air Force Base, ENG 19-016-53-15, PORTSMOUTH, N. H. CD 11/11.

Warner Bros., Main St., Sunderland, Mass. LB. $84,459, est. $100,000. reconstr. sections roads, State University, AMHERST, MASS. State Treas. Office, University of Mass., Amherst, Mass. Bids Oct. 2.

† **U. S. Eng.,** 857 Commonwealth Ave., Boston 15, Mass. cancelled bids to have been opened about Dec. 19, sprinkler sys., Watertown Arsenal, Eng. 19-016-53-50, WATERTOWN, MASS. Will re-advertise. CD 11/19.

Edwin Moss & Son, Inc., 555 Grant St., Bridgeport, Conn., CA. $100,000, Radio Television Center Station, WICC-TV, BRIDGEPORT, CONN. Bridgeport Broadcasting Co., 114 State St., Bridgeport, Conn.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Eagle Constr. Co.,** Park Pl., Newark, N. J. CA. $2,008,830. construct, manage and finance HOUSING, Fort Devens, Eng. 19-016-53-19, AYER, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. CD 9/16, under LB.

Town Bldg. Comn., Town Hall, Brookline, Mass. rejected bids Oct. 23. Edward Devotion Elementary SCHOOL addn., imprvs., Harvard St., BROOKLINE, MASS. LB. $983,644. CD 10/28, under LB.

Bond Bros., Inc., 77 Ferry St., Everett, Mass. CA. Est. $140,000. STORAGE and ADMIN. BLDG., BURLINGTON, MASS. Everett Broom & Service Co., 296 Binney St., Cambridge, Mass. Ray Thibedeau, 81 Washington St., Salem, Mass., archt. CD 11/18, under LB.

▲ **Construction Units, Inc.,** 199 Washington St., Boston, Mass. LB. Base Bid 1, $1,395,147, Base Bid 2, $1,359,147, est. $1,300,000. 123 HOUSING units, Putnam Ave. and Callendar St., Proj. PHA 3-3, CAMBRIDGE, MASS. Cambridge Housing Auth., 51 Inman St., Cambridge, Mass. Bids Nov. 25. CD 11/11.

R. C. Diocese of Boston, Most Rev. Richard J. Cushing, DD-LLD, Chancery Office, Lake St., Brighton, Mass. rejected bids Oct. 22. CHURCH, 1142 Washington St., EAST WEYMOUTH, MASS. Est. $300,000. CD 10/16.

▲ **Vara Constr., Inc.,** 718 Huntington Ave., Boston, Mass. CA. $1,068,000. Bruce Elementary SCHOOL, Providence, Milton and Butler Sts., LAWRENCE, MASS. City, City Hall, Lawrence, Mass. CD 11/18, under LB.

John F. Carey, 7 Bradford Rd., Lynn, Mass. CA. Est. $380,000. 34 RESIDENCES, MIDDLETON, MASS. Middleton Meadows, Inc., c/o Campbell & Aldrich, archts., 38 Newbury St., Boston, Mass. CD 11/26.

▲ **Associated Constr. Co.,** 525 Main St., Hartford, Conn., CA. Approx. $2,000,000. brick, concrete Willgoff LABORATORY, EAST HARTFORD, CONN. Pratt & Whitney Div., United Aircraft Corp., 400 Main St., East Hartford, Conn. CD 7/11.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

Maryland—RURAL DISTRIBUTION LINES—B.A. 12/15—Choptank Electric Co-operative, Denton, 177 mi. rural distr. lines, Caroline Co. Plans deposit $10. B. O. Vannort Engineers, Inc., 700 S. College St., Charlotte, N. C., engr. CD 3/8/51.

Md., Hyattsville—B.A. 12/15—Washington Suburban Sanitary Comn., Hamilton St., Contr. 1207-W, constr. 210 ft. 3 span girder bridge with 1,700 ft. approach roads with necessary piling, rip-rap, etc., Ednor-Mt. Zion Church Rd., over Patuxent River, Montgomery Co. Plans deposit $25, adv. ENR 12/4.

† **N. J., Wrightstown**—WATER DISTRIBUTION SYSTEM, etc.—B.A. On Or About 1/14—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., water distr. sys., elevated water tank and sewage collection sys., McGuire Air Force Base, ENG 36-109-53-245. CD 9/13/51.

† **N. J., Wrightstown**—OFFICERS QUARTERS—B.A. On Or About 1/23—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., 7 bachelor officers' quarters, McGuire Air Force Base, ENG 36-109-53-177. CD 9/13/51.

† **Pa., Marietta**—WAREHOUSE—B.A. On Or About 12/23—U. S. Eng., 24 St. and Maryland Ave., P.O. Box 1715, Baltimore 3, Md., Warehouse 21, Marietta Transportation Corps Depot, Eng. 18-020-53-36. CD 10/13.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Great Lakes Dredge & Dock Co.,** Morgan Bldg., Buffalo, N. Y. CA. $711,589, deepen harbor and remove shoals in Lake Erie, south of Buffalo Harbor, involving approx. 131,044 sq. yd. material and 595,000 cu. yd. place measurement of material other than ledge rock, NEW YORK. U. S. Eng., Engineer Park, Buffalo 7, N. Y. CD 10/2, under LB.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction
(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Caristo Constr. Corp.,** 26 Court St., Brooklyn 2, N. Y. CA $1,883,000, JUNIOR HIGH SCHOOL 285, Beverly Rd. between Ralph Ave. and E. 59 St., BROOKLYN, N. Y. Co-ordinator of School Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Oct. 1. CD 10/14, under LB.

Irvmar Realty Co., 391 E. 149 St., New York 55, N. Y. Owner Builds. Est. $500,000. 6 story APARTMENT, Mount Hope Pl. between Grand Concourse and Monroe Ave., NEW YORK, N. Y. CD 9/25.

▲ **Edmund J. Rappoli Co., Inc.,** 515 Massachusetts Ave., Cambridge, Mass. CA $1,471,050. DORMITORY group, SYRACUSE, N. Y. Syracuse University, F. Gordon Smith, exec. secy., Admin. Bldg., Syracuse, N. Y. Lorimer Rich & Assoc., 215 Montague St., Brooklyn, N. Y., archts. CD 8/29/51.

▲ **Sam Minskoff & Sons, Inc.,** 521 Fifth Ave., New York 17, N. Y. Owner Builds. Est. $2,000,000. 6 story OFFICE, 55 Church St., WHITE PLAINS, N. Y. Boak & Raad, 175 Fifth Ave., New York 10, N. Y., archts.

L & D Building Co., Box 487, Latrobe, Pa., CA. $939,000. 1, 2 and 3 story steel, brick HIGH SCHOOL, ARMAGH, PA. United School Dist., c/o J. A. Krouse, supt., R. D. 1, Homer City, Pa. Bids Nov. 17. CD 11/28, under LB.

C. J. Goodwin, 6201 Station St., Pittsburgh, Pa., CA. $300,000. 2 story, 98x152 ft. brick department STORE, MT. OLIVER, PA. Berman Realty Co., W. Wheeling Ave., Washington, Pa. (Sears Roebuck Co., lessee). Kuhb & Newcomer, 470 Washington Rd., Pittsburgh 16, Pa., archts.

Mike Leebov, 309 Plaza Bldg., Pittsburgh, Pa., CA. Approx. $300,000. 1 story, 225x160x80 ft. brick, block STORES, Brownsville Rd., PITTSBURGH, PA. A. J. Aberman, Inc., Standard Life Bldg., Pittsburgh, Pa. Liff & Justh, 809 Magee Bldg., Pittsburgh, Pa., archts.

Brownsville Constr. Co., Coal Rd., Brownsville, Pa., LB. $874,800. Valley View Federal HOUSING, 132-families, row housing, Canonsburg, WASHINGTON, PA. Washington County Housing Auth., Washington, Pa. Bids Nov. 26. CD 11/13.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Va., Norfolk**—MOORING FACILITIES—B.A. 12/16—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, ammunition mooring facilities, piling, approx. 1,230 ft. rein.-con. piers, 1,030 ft. breakwater constr., U. S. Naval Base, NOY 74888, Spec. 35799. Plans deposit $20.

† **W. Va., South Charleston**—B.A. 12/16—Dist. P. Wks. Office Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. street paving South and West of Bldg. 311 at Naval Ordnance Plant, Spec. 35832. Plans deposit $10.

Ga., Augusta—B.A. 12/17—City, City Hall, filter plant raw water pumping station, etc. Approx. $500,000. Plans deposit $50. Robert & Co. Assocs., 96 Poplar St., N.W., Atlanta, engrs. CD 3/12/51.

Ala., Gadsden—B.A. 12/19—City, water filtration plant, $100,000. Plans deposit $25. Wiedeman & Singleton, P. O. Box 1878, Atlanta, Ga., engrs.

† **N. C., Camp Lejeune**—B.A. 12/22—P. Wks. Office, Bldg. No. 1005, Marine Barracks, b. conc. surf., certain areas, Camp Geiger (Second Combat Service Group) at Marine Barracks, Spec. 36951. Plans deposit $10.

† **Va., Norfolk**—PIERS—B.A. 12/23—Dist. P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Zone 11, addnl. pier at U. S. Naval Base, (Convoy Escort piers), NOY 74889, Spec. 35800. Plans deposit $30.

† **Fla., Orlando**—CHAPEL—B.A. On Or About 1/6—U. S. Eng., P. O. Box 4970, Jacksonville, chapel, Pinecastle Air Force Base, Serial No. ENG 08-123-53-28. CD 1/31/51.

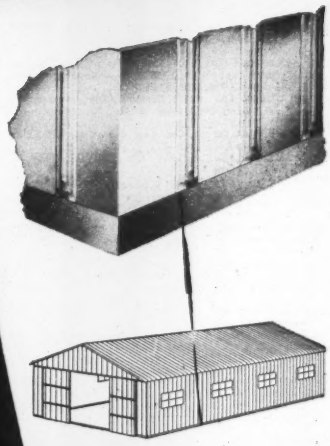
† **Tennessee**—B.A. On Or About 1/6—U. S. Eng., 303 Federal Office Bldg., Nashville, Zone 1, Cheatham Lock and Dam reservoir clearing, Group I, Cumberland River, 25 mi. northwest of Nashville, Cheatham and Dickson Counties, CIVENG 40-058-53-10. CD 6/18/52.

† **Fla., Key West**—HANGAR—B.A. 1/7—Dpt. Navy, Officer in Charge of Construction, Box 465, Naval Base, S. C., fleet maintenance hangar, at Naval Air Station, NOY 71540. Plans deposit $70. CD 11/30/51.

† **Miss., Gulfport**—FIRE PROTECTION SYSTEM—B.A. 1/7—Officer in Charge of Constr., Box 365, Naval Base, S. C., exten. fire protection sys. at Construction Battalion Center, NOY 76227. Plans deposit $10.

Ga., Macon—B.A. 1/13—Macon Bd. Water Comrs., City Hall, addnl. water mains, $100,000.

(Continued on page 90)



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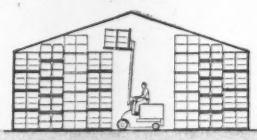

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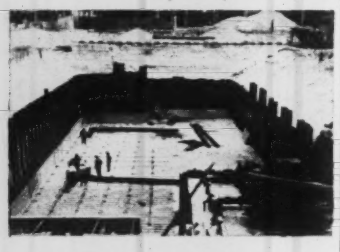
Pumping: Wellpoint Dewatering Corp.



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31 FT BELOW JAMAICA BAY

Location was Rockaway Peninsula, sandwiched between Jamaica Bay and the Atlantic Ocean. Ground water had to be lowered to a maximum depth of 31 ft. Wellpoint Dewatering Corp., a Griffin associate, was employed to handle the intensive pumping problem.

Griffin Wellpoints took the job in stride and pumped 6 million gallons per day, round-the-clock for 9 months, to drain the entire 2-block-long project. Because of limited working space, steel piling was required in the lower portion of the deep excavation. Contractor desired to eliminate cumbersome cross-bracing; Griffin engineers planned wellpoints so that hydrostatic pressure was considered zero in piling design. Steel sheet piling was cantilevered with a penetration of 15 ft below subgrade.

• Result: Absolutely no cross-bracing—unobstructed working area—job completed ahead of schedule. For "quick-dry"...specify ...Griffin.

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In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax

(Continued from page 88)

BIDS ASKED—BUILDINGS

▲ **Ala., Birmingham**—FEED MILL—B.A. 12/17—Cosby-Hodges Milling Co., c/o Paul Berg, engr., 438 Utility Bldg., Fort Wayne, Ind., feed mill, $1,200,000. Plans deposit $200. Extended date. CD 10/28.

Miss., Brookhaven—HOUSING—B.A. 12/17—Brookhaven Housing Auth., Brookhaven, housing, Proj. Miss. 60-2, $300,000. Plans deposit $50, Landry & Matthes, Hattiesburg, archts. CD 9/18.

▲ **Ala., Gadsden** — HOUSING — B.A. 12/18—Gadsden Housing Auth., Gadsden, 146 unit housing, Project ALA 49-4. $1,300,000. Bid date changed. CD 11/14.

La., New Orleans—PLANT—B.A. 12/18—Freeport Sulphur Co., Port Sulphur, plant addn., Port Sulphur, $100,000, Wogan & Bernard, Pere Marquette Bldg., archts.

Tenn., Knoxville—HIGH SCHOOL—B.A. 12/18—City, Supt. Schools, 624 Lamar St., Knoxville South High School addn. $500,000. Plans deposit $100. Bealer & Wilhoit, Journal Arcade, archts. CD 5/19.

† **Va., Warrenton**—HOUSING—B.A. 12/23—U. S. Eng., 1st and Douglas Sts. N. W., Wash. 25. D. C., 2 story row houses, family quarters, Vint Hills Farms Station, ENG 49-080-53-41-(35). Plans deposit $25. CD 11/26.

Ala., Union Springs—HOUSING—B.A. 12/29—Union Springs Housing Auth., Union Springs, housing, Projects ALA 70-1 and ALA 70-2, $400,000. Plans deposit $50. Extended date. CD 11/28.

Ga., Americus—HOUSING—B.A. 12/30—Americus Housing Auth., Americus, housing, Projects GA 62-4, GA 62-5, GA 62-6, GA 62-7, GA 62-8 and GA 62-9, $500,000. Plans deposit $50. Extended date. CD 11/25.

Ga., Lakeland—HOUSING—B.A. 12/30—Lakeland Housing Auth., Lakeland, housing, Projects GA 138-1 and 138-2. $300,000.

Ga., Nashville—HOUSING—B.A. 12/30—Nashville Housing Auth., Nashville, housing, Projects GA 92-5, GA 92-6 and GA 92-7, $300,000.

Ga., Hampton—HOUSING—B.A. 12/31—Hampton Housing Auth., Hampton, housing, Projects GA 110-1 and GA 110-2, $300,000.

Ga., Richland—HOUSING—B.A. 1/6—Richland Housing Auth., Richland, housing, Projects GA 118-1, GA 118-2, GA 118-3 and GA 118-4, $450,000. CD 10/9/50.

La., Baton Rouge—CHURCH—B.A. 1/15—First Baptist Church, c/o A. Hays Town, archt., Triad Bldg., church, $400,000. CD 2/15/50.

SOON LETS CONTRACT—BUILDINGS

Fla., Jacksonville—Y.M.C.A.—Foundation of Jacksonville, National Bank, soon lets contract, health bldg. $500,000. S. Ralph Fetner, 218 W. Church St., archt. CD 11/5.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Jack Stone Co.**, 55 K St. S.E., Wash., D. C., CA $948,960, radio transmitter antenna system at Monogram, and radio receiver antenna sys. at Northwest, NOY 74887, Spec. 35790, MONOGRAM and NORTHWEST, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. CD 11/21, under LB.

† **Barnhill & Long Co.**, Inc., Tarboro, N. C., LB $87,949. Railroad repairs NCDFD, NOY 74930, PORTSMOUTH, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, VA. Bids Nov. 25. CD 11/6.

NORTH CAROLINA—State Hy. & P. Wks. Comn., Raleigh,

Ben B. Propst, Box 526, Concord, N. C. CA $781,793, est. $400,000-$500,000. Proj. 5845 grading, traffic bound macad. stabilized aggregate, bit. surf. tr. 25.03 mi. Davidson and Randolph Counties. Bids Nov. 18, awarded Nov. 25. CD 11/21, under LB.

† **Raymond Diehl Co.**, 1214-16 N. Monroe St., Tallahassee, Fla. LB $142,462. aviation fuel storage at Marine Corps Auxiliary Landing Strip, NOY 71158, BEAUFORT, S. C. Officer in Charge of Constr., Box 365, Naval Base, S. C. Bids Nov. 20. CD 10/22.

▲ **FLORIDA**—State Hy. Dpt., Tallahassee,

Cleary Bros. Constr. Co., West Palm Beach, Fla., LB, $357,425, bridges. Proj. 9311-117, Palm Beach Co. CD 10/30;

Bunnell-Ludwig Corp., 15151 W. Dixie Hy., North Miami Beach, Fla., LB, Item 3, $1,075,005. bridge Proj. 1714-175, Sarasota Co.;

Massman Constr. Co., 1221 Baltimore St., Kansas City, Mo., LB, $3,179,923, combination bid Proj. Job. 1315-175 and 1304-175, Manatee Co. Bids Nov. 20. CD 10/29.

▲ **FLORIDA**—State Hy. Dpt., Tallahassee,

Cone Bros. Constr. Co., Caeser and Cumberland Rds., Tampa, Fla., LB, $798,148, UG-025-1 (8) and U-025-1 (9) Pinellas Co.; LB, $260,288, Proj. 1313-178- and 131-180 Manatee Co.; LB, $81,186, Proj. 1552-151, Pinellas Co.; LB, $101,804, S-330 (2), Hillsborough and Pasco Counties;

Coggin & Deermont, Chipley, Fla., LB, $62,917, 5021-101 Gadsden Co.; LB, $143,200 Proj. 5101-106, Gulf Co.; LB, $264,938, Proj. 5601-108, Liberty Co.;

Duval Eng. & Constr. Co., 1746 E. Adams St., Jacksonville, Fla., LB, $204,990, Proj. 7216-110, Duval Co.; LB, $339,168, Proj. 7202-183, Duval Co.; LB, $68,774, S-358 (1), Duval Co.;

J. W. Conner & Sons, Inc., 3916 E. 8 Ave., Tampa, Fla., LB, $108,627, S-342 (1), Orange Co., LB, $181,116, S-300 (2), Pasco Co.; LB, $61,371, Proj. 1403-116 and 0813-102 and 1400-103 Pasco and Hernando Counties;

L. L. Hall Constr. Co., Orange Park, Fla., LB, $91,834, S-282 (2), Flagler Co.; LB, $96,628, S-367 (1), St. Johns Co.;

S. F. MacKenzie Co., Ft. Pierce, Fla., LB, $120,640, Proj. 8855-1101 and 8855-102, Indian River Co.; LB $61,386, S-295 (3), Martin Co.;

Asphalt Paving Co., 5876 Norwood Ave., Jacksonville, Fla., LB, $148,445, Proj. 8006-113, Indian River Co.;

Fairchild Florida Constr. Co., Live Oak, Fla., LB $296,313, S-263 (2), Calhoun Co.;

Langston Constr. Co., Orlando, Fla., LB, $639,754, U-022-1 (1), Orange Co.;

Marion Constr. Co., Ocala, Fla., LB, $108,748, Proj. 3601-112, Marion Co.;

Geo. G. Tapper Co., Inc., Port St. Joe, Fla., LB, $70,220, Proj. 4954-151 and 4954-152 Franklin Co.;

V. E. Whitehurst & Sons, Williston, Fla., LB, $180,807 Proj. 2600-104, Alachua Co. Bids Nov. 20. CD 11/12 and 10/30.

McAnulty Inc., Bradenton, Fla., LB, $124,977 Ringling Museum of Art addn., SARASOTA, FLA. Florida State Bd. Control, Building 3, University of Florida, Gainesville, Fla. Bids Nov. 18. CD 11/5.

MISSISSIPPI—State Hy. Dpt., T. C. Robbins, dir., Jackson,

Boyd Constr. Co., Grenada, Miss. CA $160,924, est. $195,000. grade, bridges, grav. surf. course 5.756 mi. Miss. Hy. No. 330 between Coffeeville and Bruce, Proj. SP 330-1550 (1), Yalobusha Co.;

Hamilton & Rowell Constr. Co., Laurel, Miss. LB $215,480, est. $249,000. grade, culverts, bridges 7.468 mi. Miss. Hy. No. 10 between Miss. No. 15 and Pheba, Proj. S 740-1 (1), Webster and Clay Counties. Bids Nov. 25. CD 11/14.

† **Grizzaffi Shipyard Co., Inc.**, Morgan City, La. LB $88,369. maintenance dredging approx. 241,000 cu. yd. from Bayou Petit Anse, Tigre and Carlin, Iberia Parish, Inv. 53-74, LOUISIANA. U. S. Eng., Foot of Prytania St., New Orleans 9, La. Bids Nov. 21. CD 10/29.

† **Southeastern Electric Constr. Co.**, Box 581, Andalusia, Ala. LB $624,000. Electrical 13.8 KV distr. system, at Mchoud Ordnance Plant, Inv. 53-68, NEW ORLEANS, LA. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids Nov. 20. Bids 11/7 rejected. CD 11/12, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Daniel Constr. Co.**, 429 N. Main St., Greenville, N. C. CA. Total $23,000,000. synthetic fibre PLANT, Bermuda Hundred Sect., Chesterfield Co., near HOPEWELL, VA. Allied Chemical & Dye Corp., (Nitrogen Div.) 61 Broadway, New York, N. Y. Lockwood Greene Engineers, Inc., 10 Rockefeller Plaza, New York, N. Y. engr.-archt. CD 11/19.

Ralph L. Penny, 107 Montgomery St., Raleigh, N. C. Owner Builds. est. $750,000. 100 RESIDENCES, RALEIGH, N. C.

A. C. Stamford, Inc., Albany, Ga., CA, $493,633. HOUSING Projects GA 119-1 and GA 119-2, CALHOUN, GA. Calhoun Housing Auth., Calhoun, Ga. Bids Nov. 26. CD 11/5.

Russell & Raulerson Co., 4165 E. 8 Ave., Hialeah, Fla., Owner Builds, $300,000. 19 duplex-type RESIDENCES, HIALEAH, FLA.

Walter R. Crabtree, Barnett Bldg., Jacksonville, Fla., Owner Builds, $500,000, 37 RESIDENCES, JACKSONVILLE, FLA.

Lee Constr. Co., 3142 Coral Way, Miami, Fla., CA, $550,000 55 RESIDENCES, MIAMI, FLA. Guild Homes, 3142 Coral Way, Miami, Fla.

Gust K. Newberg Constr. Co., 99 N.E. 71 St., Miami, Fla., CA, $100,000 WAREHOUSE addn., MIAMI, FLA. Railey-Miami Inc., 27 W. Flagler St., Miami, Fla. Bids Nov. 21. CD 11/19.

Sun Ray Homes, Inc., 1900 N.E. 182 St., Miami Beach, Fla. Owner Builds. $400,000, 44 RESIDENCES, MIAMI BEACH, FLA.

Silmar Realty Corp., 205 Grant Ave., Sarasota, Fla., Owner Builds, $375,000, MOTOR COURT, SARASOTA, FLA.

W. A. McCree, Orlando, Fla., CA, $100,000 WAREHOUSE addn. WINTER PARK, FLA. W. W. Nelson, 802 Georgia Ave., Winter Park, Fla.

L. F. Lloyd, 1347 Orchid Ave., Winter Park, Fla. Owner Builds, $600,000. 60 RESIDENCES, WINTER PARK, FLA.

▲ **Nichols Constr. Co.**, 2864 Airline Hy., Baton Rouge, La. CA Est. $1,000,000. chemical PLANT, BATON ROUGE, LA. Cook Chemical Co., c/o contractor.

† **Schimpeler Constr. Co.**, 4023 S. Brook St., Louisville, 8, Ky. LB $111,188, est. $100,000. brick over tile, stone animal research LABORATORY, LOUISVILLE, KY. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Nov. 25. CD 10/17.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

O., Cincinnati—B.A. 12/16—Bd. Comrs. Hamilton Co., Court House, install Beechmont Cincinnati-West Union Rd. sanitary sewer from Collinsdale Ave. eastwardly to 500 ft. east of Nagel Rd., constr. plain and reinf. con. sewer pipe. $127,550. George Lemmel, co. engr. CD 10/9.

O., Dayton—B.A. 12/16—Comrs. Montgomery Co., Court House, water main, sanitary sewer line in Lenz Ave., Fairview Sewer Dist.; water, sewer lines in Kammer, Almond and Sayre Aves., Westwood Sanitary Sewer Dist. Plans deposit $5 each, Earl Ribert, Court House, co. sanitary engr. CD 8/17/50.

Mich., Detroit—LIGHTING FACILITIES—B.A. 12/17—State, Charles M. Ziegler, comr., 222 Townsend St., Lansing, Zone 13, installation, relocation public lighting facilities, Edsel Ford Expressway, along Kirby Ave.,

UI 82-65 C8 (UI 391 45), $230,000. Plans deposit $3 no refund.

† **Mich., Oscoda**—AIRCRAFT WASHRACK—B.A. 12/22—U. S. Eng., 1900 Cadillac Tower, Detroit, Zone 26, aircraft washrack, Oscoda Air Force Base. CD 12/1.

† **Wis., Madison**—ADMINISTRATION BLDG—B.A. About 12/30—U. S. Eng., 428 Federal Bldg. Administration Bldg., Truax Air Force Base, Inv. No. ENG 47-013-53-28. CD 6/27/51.

† **Mich., Oscoda**—AIRCRAFT WASHRACK—Bids Asked—U. S. Eng., 1900 Cadillac Tower, Detroit, aircraft washrack Oscoda Air Force Base. CD 6/29/51.

BIDS ASKED—BUILDINGS

▲ **Ill., Chicago**—HOUSING—B.A. 12/16—Chicago Housing Auth., 608 S. Dearborn St., Zone 5, 18-row houses, 128 units, Wentworth and 95 Sts. $1,400,000. CD 9/7/50.

O., Barberton—SCHOOL—B.A. 12/16—Bd. Educ., Norton School Dist., R. 1, Loyal Oak School addn., imprv. Norton Senior High School. Plans deposit $20. W. B. Huff, 1050 N. Main St., Akron, Zone 10, archt. CD 10/8.

Mich., Berkeley—SCHOOL—B.A. 12/17—City, Gaylord Knudson, secy. Bd. Educ., brick, masonry Oxford and Tyler School addns. $300,000. Plans deposit $3 no refund. Earl G. Meyer, 806 Farwell Bldg., Detroit, archt. CD 12/1.

O., Richfield—SCHOOL—B.A. 12/17—Bd. Educ., Bath-Richfield School Dist., completion of Revere High School. Plans deposit $20. W. B. Huff, 1050 N. Main St., Akron, Zone 10, archt.

▲ **Ill., La Grange**—HOSPITAL—B.A. 12/18—Community Memorial General Hospital, Willow Springs Rd. and 51 St., 1 and part 2 story, part bsmnt., concrete, brick hospital. $1,500,000. Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago, Zone 3, archts. CD 8/17/50.

Mich., Farmington—SCHOOL—B.A. 12/18—Bd. Educ. School Dist. 5, Fractional, R. F. Rickert, secy., 2 story, bsmnt., brick, steel elementary school for Farmington, Redford and Livonia, $300,000. Plans deposit $25, refundable. Extended date. Eberle M. Smith Assoc., Inc., 153 E. Elizabeth St., Detroit, archt. CD 11/28.

O., Hubbard—HIGH SCHOOL—B.A. 12/18—Bd. Educ., B. F. Clash, clk., Hubbard, completing high school, incl. auditorium. $454,000. Plans deposit $25. Kling & Frost, 661 Wick Ave., Youngstown, archts. CD 11/12.

O., Columbus—POWER PLANT—B.A. 12/19—State Dpt. P. Welfare, 705 Ohio Depts. Bldg., power plant repairs, equip and service units, piping, Columbus State Hospital. Plans deposit $5. Sims, Cornelius & Schooley, 2901 N. High St., archts.-engrs. H. G. Allen, c/o owner, archt.

O., Holland—SCHOOLS—B.A. 12/19—Bd. Educ., Springfield School Dist., G. E. Swope, clk., Holland, addns. to Holland, Dorr and Crissey Grade Schools. Plans deposit $10. Thomas D. McLaughlin & John J. Keil, 500 Dominion Bldg., Lima, archts. CD 10/31.

O., Akron—JAIL—B.A. 12/22—Comrs., Summit Co., Court House, alterations, addns. to Summit County Jail. Plans deposit $20. Treflon Sagadencky, 429 Chestnut Blvd., Cuyahoga Falls, archt. Bids Oct. 20 rejected. CD 10/1.

O., Dayton—SCHOOL—B.A. 12/23—Bd. Educ., 232 N. Main St., addns., alterations of Fairview High School, incl. 3 addns. of fireproof constr. and alterations present bldg., Philadelphia Dr. and Hillcrest Ave. Hart, Igleburger, Wurst & Assoc., 532 Hulman Bldg., archts. CD 1/11.

O., West Carrollton—SCHOOL—B.A. 12/23—Bd. Educ., C. F. Holliday, clk., West Carrollton, elementary school bldg., industrial arts bldg., with storm sewer and street development. Walker, Norwick & Assoc., 12 W. Monument Ave., Dayton, archts.-engrs. CD 5/19.

▲ **O., Columbus**—HOUSING—B.A. About 1/1—Columbus Metropolitan Housing Auth., 425 W. Rich St., 90 brick buildings, 550 housing units, on 50 acre triangular plot, bounded by Woodward, Woodland and Brentnell Aves. $5,000,000. Wm. F. Bridenbach, 2143 Fairfax Rd., archt. CD 11/19.

O., Dayton—SCHOOL—B.A. 1/6—Bd. Educ., 232 N. Main St., 1 story, part bsmnt., Patterson Park School near Krebs Ave. and Wilmington Pike. Plans deposit $20. Freeman A. Pretzinger, 1155 Reihold Bldg., archt. CD 1/11.

† **O., Columbus**—WAREHOUSE—B.A. 1/15—U. S. Eng., 237 Fourth Ave., Huntington, 18, W. Va., warehouse for flammables at Columbus General Depot, Eng 46-022-53-26. CD 11/13, under LB.

O., Columbus—MEMORIAL—B.A. 3/1—Bd. Trustees Franklin County Veterans Memorial Bldg., c/o County Comrs., Court House, Columbus, Franklin County Veterans Memorial Bldg. CD 11/13.

Ill., Morton Grove—HOMES—Bids Asked—Evanston Bond & Mortgage Co., 1732 Orrington St., 52 homes. $800,000. Seymour Goldstine, 809 Rush St., Chicago, Zone 11, archt.

Mich., Detroit—COMPRESSOR—Bids Asked—Hudson Motor Car Co., 12602 E. Jefferson St., brick, steel compressor bldg., extensive alterations, E. Jefferson St. $82,000. Boddy-Benjamin Assoc., Inc., 28 W. Adams St., engr.

Mich., Roseville—SCHOOL—Bids Asked—Bd. Educ., School Dist. No. 5, brick, elementary school for Erie and Lake Twps., Wellington Site. $300,000. Jensen & Keough, 15875 James Couzens St., Detroit, archts.

SOON LETS CONTRACT—BUILDINGS

Mich., Detroit—SERVICE STATION—Krajenke Buick Sales Co., 11620 Joseph Campau St., 1 story, brick, masonry service station addn., incl. paint shop, Mc-

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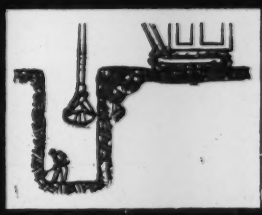

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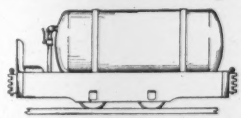

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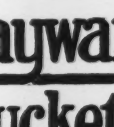

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Lean and Joseph Campau Sts. $85,000. Walter J. Rozycki, 2266 E. Forest St., archt.

Mich., Flint—SCHOOL—St. Michael R. C. Parish, Flint, soon lets contract 2 story, brick, steel parochial school. Simpson & Hartwick Assoc., 1005 Bauch Bldg., Lansing, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Collier Constr. Co., Film Exchange Bldg., Cleveland, O. CA. $399,890, Est. $400,000. install signal equip. on Rapid Transit Line, CLEVELAND, O. Cleveland Transit System, 1404 E. 9th St., Cleveland, 14, O. Morris W. Rew, c/o owner, engr. Awarded Nov. 13. CD 2/9/50.

Chicago Bridge & Iron Co., c/o Guildhall Bldg., Cleveland, O., CA. $380,608, est. $436,000, water reservoir (tower) 2 m. g. capacity, Beachwood Village, CLEVELAND, O. City, City Hall, Cleveland 14, O. Awarded Nov. 5. CD 10/23.

▲ **Emil Marcelletti,** 11610 Willard Ave., Cleveland, O., CA. $625,460, est. $600,000. 24 in. pre-stressed concrete water supply pipe along Detroit Rd. west from end of Rocky River Bridge, Lakewood, Rocky River, etc.;

Lombardo Bros. Constr. Co., 3600 Ridge Rd., Cleveland, O., CA. $489,600, est. $450,000. 36 in. pre-stressed concrete water supply pipe, Cleveland;

National Constr. Co., 23500 Lakeland Blvd., Euclid, O. CA. $95,658, est. $90,000. 24 in. pre-stressed concrete water supply pipe along Euclid Ave. east from Cuyahoga Co. line, Wickliffe;

The Kassouf Co., 9715 Clinton Rd., Cleveland, O., CA $275,204, est. $300,000. water supply pipe, prestressed concrete, varying from 30- to 24-in., Parma, CLEVELAND, O. City, City Hall, Cleveland 14, O. Frank J. Schwemler, City engr. Grand total $1,485,922. Awarded Nov. 18. CD 12/10/43.

† **Newberry Constr. Co.,** 1728 Powers St., Cincinnati, O. CA. $272,231. replacing of rails, cross ties, switch ties, tie plates, etc., Lima Ordnance Depot, LIMA, O. U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va. Bids Nov. 5. CD 10/20.

▲† **Friebel & Hartman,** Shelby, O. LB $5,292,816. 400x2,000 ft. warehouse, imprvs., Wilkins Air Force Specialized Deposit, Shelby, O. U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va. Bids Nov. 25. CD 10/22.

INDIANA—State Hy. Comn., State House Annex, Indianapolis, Zone 4,

Bontrager Constr. Co., 618 Indiana Ave., Elkhart, Ind., CA, $602,771, c.conc. 6.673 mi. State Rd. 135 from State Rd. 64 at New Salisbury to U. S. Rd. 150 at Palmyra, Harrison Co. Bids Oct. 30, awarded Nov. 28. CD 11/20, under LB.

† **U. S. Eng.,** 420 Locust St., St. Louis, 2, Mo., received no bids Nov. 25, levees, Proj. Item IV-A, East St. Louis, Ill. and vicinity (East Side Levee and Sanitary District) Madison and St. Clair Counties, CIVENG 23-065-53-58, ILLINOIS. CD 11/6.

† **Joseph L. Pohl,** Nevada, Mo., LB. $115,659, est. $110,958 sub-levees for seepage control, Mississippi River, Chain of Rocks Canal, Granite City, Ill., and vicinity, Madison Co., CIVENG 23-065-53-61, ILLINOIS. U. S. Eng., 420 Locust St., St. Louis, 2, Mo. Bids Nov. 25. CD 11/7.

MICHIGAN—State Hy. Dpt., 222 Townsend St., Lansing, Zone 13,

Pierson Contg. Co., 609 Eddy Bldg., Saginaw, Mich. CA. $778,690, est. $830,000. grading, drainage structures, 24 ft. c. conc. 7.623 mi. U. S. 12, FI 39-40 C4, (F1-400 5), Kalamazoo Co. CD 11/19, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Castle Homes, Inc., 1288 Stoner St., Akron, O. Owner Builds. 32 HOMES on tract adjacent to W. Wilbeth Rd. and Flanders Ave. known as Castleton No. 1, incl. streets, walks, utilities, AKRON, O.

Don M. Casto & Assoc., 42 S. Fourth St., Columbus, O. Owner Builds. SHOPPING CENTER, Northern Lights Shopping Center, Cleveland Ave. near Linden, 5,000 car parking area, COLUMBUS, O. CD 10/20.

Dollar Constr. Co., 4521 Brookpark Rd., Parma, O. Owner Builds. $400,000. 3 story, brick, 31-suite APARTMENT, 19220 Van Aken Blvd., SHAKER HEIGHTS, O. George Burrows, Howard Hinman & Gabriel, 16104 Kinsman Rd., Shaker Heights, O. archts.

▲ **Mavec Constr. Co.,** 289 E. 200 St., Euclid, O. Owner Builds. $20,000,000. 960-home HOUSING DEVELOPMENT and 32-unit SHOPPING CENTER, incl. 64-room hotel, Euclid Ave., U.S. Rte. 20, WILLOUGHBY, O.

Chell & Anderson, 176 W. Adams St., Chicago, 3, Ill., LB. $363,000, 2 story, bsmnt., brick Edgebrook Grade SCHOOL addn., 6565 N. Hiawatha Ave., CHICAGO, ILL. Bd. Educ., 228 N. LaSalle St., Chicago, 1, Ill. Bids Nov. 21.

Wm. Lohnquist, 636 Church St., Evanston, Ill., Owner Builds. $455,000, nine APARTMENTS incl. 36 units, Ridge Rd. and Central Ave. area, EVANSTON, ILL. Rosene & Watts, 232 E. Erie St., Chicago, 11, Ill., archts. Awarded Nov. 17.

▲ **Admo Builders, Corp.,** 8869 Burlington Ave., Brookfield, Ill. Owner Builds. $1,200,000, 90 HOMES, HINSDALE, ILL. Everett F. Quinn, 136 N. La Salle St., Chicago, 2, Ill., archt. Awarded Nov. 18.

▲ **Arthur T. McIntosh & Co.,** 105 W. Madison St., Chicago, 3, Ill., Owner Builds. $2,750,000, 250 HOMES along Congress Expressway, VILLA PARK, ILL. Awarded Nov. 19.

Immel Constr. Co., 562 N. Main St., Fond du Lac, Wis., LB $608,856, general contract HOSPITAL addn., ANTIGO, WIS. Langlade Co. Memorial Hospital, Antigo, WIS. Bids Nov. 19. CD 11/6.

W. W. Oeflein, Inc., 5345 N. Hopkins St., Milwaukee 9, Wis., CA, $691,900, general contract Campus LABORATORY at State College, MILWAUKEE, WIS. Bd. Regents of State College, Madison, Wis. Bids Oct. 22. CD 11/5, under LB.

▲ **A. W. Kutsche & Co.,** 2924 W. Grand Blvd., Detroit, Mich. CA. $1,500,000, 2 story, bsmnt., brick, steel C. L. Smith Junior High SCHOOL, Yale and Notre Dame Sts., DEARBORN, MICH. City, Grant W. MacKenzie, secy. School Dist., Dearborn, Mich. Bids Nov. 12. CD 10/9.

Henry C. Weber Constr. Co., Bay City, Mich. CA. Est. $300,000. 2 story, brick, steel dial exchange OFFICE, dial equip., MIDLAND, MICH. Michigan Bell Telephone Co., 1365 Cass Ave., Detroit, Mich. Bids Nov. 11. CD 11/10.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Kansas**—B.A. 12/18—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., removing obstructions to flow in Kansas River, near Kansas City, Inv. 23-028-53-91. Extended date. CD 11/12.

† **Minn., Minneapolis**—ALERT TAXIWAY—B.A. 12/18—U. S. Eng., 709 Jackson St., Omaha, Neb., alert taxiway, lighting at Wold-Chamberlain Air Force Base, Inv. 25-066-53-110. CD 11/27/51.

Missouri—RURAL DISTRIBUTION LINES—B.A. 12/18—Inter-County Electric Co-operative Assn., Licking, 144 mi. rural distr. lines, 22 mi. changes, Crawford, Dent, Gasconade, Maries, Phelps, Pulaski, Shannon and Texas Counties, $225,000, Frank Horton & Co., Lamar, engrs. CD 9/8/51.

† **Minn., Fort Snelling**—B.A. 12/19—U. S. Eng., 1709 Jackson St., Omaha, Neb., rehabilitation of roads, Inv. 25-066-53-104.

Tex., Orange—B.A. 12/19—Orange Co. Housing Auth., Orange, sewage disposal plant, for unit of constr. at West Orange, Bridge City, Cove and Vidor. $65,000: Plans deposit $50. Matkin & Fitch, 4101 San Jacinto St., Houston, archts.

Tex., Orange—B.A. 12/19—Housing Auth. of Orange Co., Orange, street paving for unit of constr. at West Orange, Bridge City, Cove and Vidor. $60,000. Plans deposit $50. Matkin & Fitch, 4101 San Jacinto St., Houston, archts.

† **Wyoming**—B.A. 12/23—Bureau Reclamation, Dpt. Interior, P. O. Box 280, Casper, earthwork, asphaltic membrane lining, Northport Canal, Station 1055 plus 25 to Station 1092 plus 25, North Platte Proj., Spec. 703C-290; adv. CUR 12/1.

† **Montana**—TRANSFORMER—B.A. 1/6—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Tiber for carload shipments and Chester for LCL shipments at option of bidder, outdoor power transformer, with tank-mounted lighting arresters for Tiber Switchyard, Marias Div., Lower Marias Unit, Missouri River Basin Proj., Spec. DS 3847. CD 5/25/44.

† **Oregon**—B.A. 1/6—U. S. Eng., Pittock Block, Portland, one 100 ton overhead traveling bridge crane, Lookout Point Dam, CIVENG 35-026-53-90. T. H. Lipscomb, c/o owner, engr.

† **North Dakota**—B.A. On Or About 2/3—U. S. Eng., Fort Lincoln, P. O. Box 300, Bismarck, powerhouse, switchyard, Garrison Dam and Reservoir Proj., in Twp. 146 N., Range 84 W, Mercer Co., on Missouri River approx. 75 mi. northwest of Bismarck, 65 mi. southwest of Minot, 3 mi. west of Riverdale, CIVENG 32-015-53-19. CD 6/1/44.

BIDS ASKED—BUILDINGS

† **Minn., Minneapolis**—HOUSING—B.A. 12/17—U. S. Eng., 1709 Jackson St., Omaha, Neb., rehabilitation housing units Twin Cities Arsenal, Inv. 25-066-53-76. CD 8/20/52.

Okla., Stillwater—POULTRY—B.A. 12/18—Oklahoma A & M College, Stillwater, poultry bldg. at A & M College. $225,000, Phillip A. Wilber, 315 Knobloch St., archt. CD 11/19.

Tex., Kingsville — HOUSING—B.A. 12/18—Kingsville Housing Auth., Kingsville, 92 low cost housing units, Proj. Tex 114-1, 80 dwelling units in 16 bldgs., Proj. Tex 114-2, 12 dwelling units in 6 bldgs. $739,000. Bid date changed. Boese & Harkrider, Texas & Pacific Bldg., Fort Worth, engrs.-archts. CD 11/19.

▲ **Tex., Corpus Christi**—AUDITORIUM—B.A. 1/2—City, City Hall, municipal auditorium, $1,400,000. Plans deposit $50. Extended date. Hare & Hare, 114 W. 10 St., Kansas City, Mo., landscape archts. Richard S. Colley, 310 S. Tancahua St., archt. CD 11/7.

Mo., Joplin—SCHOOL—B.A. 1/9—Bd. Educ., Eastmoreland Elementary School, $325,000. E. L. Peterson, 1103 E. Armour St., Kansas City, Mo., archt. CD 9/8.

▲ **Tex., Longview**—PLANT—Bids Asked—Grove Controls, Inc., Longview, plant. $5,455,952. CD 11/6.

SOON LETS CONTRACT—BUILDINGS

Tex., Dallas—WAREHOUSE—Zale Jewelry Co., 409 N. Akard St., soon lets contract 131x252 ft., masonry concrete, warehouse, $150,000. Mullen & Powell, Reserve Life Bldg., engrs. CD 8/20.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **V & M Contg. Co., Inc.,** 4030 Chouteau Ave., St. Louis 10, Mo. LB $838,980, est. $965,000, general work;

Fleischer-Seeger Constr. Co., 4900 Washington Blvd., St. Louis 8, Mo. LB $480,430, est. $500,000. Furnaces and appurtenances;

M. W. Kellogg Co., 225 Broadway, New York 7, N. Y. LB $152,000, est. $160,000 chimneys for constr. and equip. rubbish incinerator erected at foot of Gasconade St., ST. LOUIS, MO. City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 and Market Sts., St. Louis 3, Mo. Bids Nov. 25. CD 10/27.

Okay Constr. Co., 1422 Scheffer Ave., St. Paul, Minn. CA $268,853. 138.5 mi. rural distr. sys. in Gregory, Tripp and Lyman Counties, SOUTH DAKOTA. Rosebud Electric Assoc., Inc., Gregory, S. D. Bids Oct. 28. CD 10/12.

† **R. N. Campsey Constr. Co. & C. F. Lytle Co.,** 2238 Oneida St., Denver, Colo. CA $508,432, est. $580,446, constr. Oahe-Midland 115 KV transmission line, Transmission Div., Missouri River Basin Proj., Spec. DC 3781, SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Huron, S. D. Bids Oct. 2, awarded Nov. 21. CD 10/13, under LB.

† **Richard E. Quinn,** 5006 Main St., Kansas City, Mo. LB, $133,231, est. $497,440, levee on Big Blue River, near Seward, NEBRASKA. U. S. Eng., 601 Davidson Bldg., Kansas City, Mo. Bids Nov. 25. CD 11/20.

† **Olson Constr. Co.,** 410 S. 7 St., Lincoln, Neb. CA $680,886. bachelor officers quarters, Lincoln Air Force Base, Inv. 25-066-53-53, LINCOLN, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Nov. 21. CD 11/28, under LB.

Foster-Smetana Co., 4360 Nicholas St., Omaha, Neb. CA Est. $120,000. Building work, antenna for radio and television station, OMAHA, NEB. W. O. W. Broadcasting Co., Insurance Bldg., Omaha, Neb.

Southwest Sand & Gravel Co., Great Bend, Kan. CA $133,158. curbing, guttering 75 blocks streets, GREAT BEND, KAN. City, Great Bend, Kan.

† **Ransdell Constr. Co.,** Box 610, Dallas, Tex., LB $310,774, Lot 1, fuel sys. and storage at Altus; LB $810,105, Lot 2, fuel sys. and storage, at Ardmore, Eng 34-066-53-41, ALTUS, OKLA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Nov. 26. CD 11/11.

W. L. Ratcliff Constr. Co., Slattery Bldg., Shreveport, La., LB, $121,896, electrical distr. sys., Ardmore Air Force Base, Inv. No. Eng 34-066-53-57, ARDMORE, OKLA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Nov. 20. CD 1/24.

Max Holloway Co., American Natl. Bank Bldg., Oklahoma City, Okla. CA. $110,826, est. $111,735, c. conc. paving N.E. 30, Lottie to Eastern Sts., OKLAHOMA CITY, OKLA. City, City Hall, Oklahoma City, Okla. Awarded Nov. 25.

† **Carruth Contg. Co.,** P.O. Box 2191, Baton Rouge, La. LB. $372,663, est. $515,070, embankment slope protection at Dam "B", Natches River, CIVENG 41-443-53-22, TEXAS. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Nov. 25.

▲† **Edward Morgan Co. & Jones & Gillis,** Box 4537, Fondren Station, Jackson, Miss., CA. $3,177,130, est. $3,148,341, completion of embankment and constr. service bridge, Garza-Little Elm Dam and Reservoir on Fork of Trinity River, near Lewisville, CIVENG 41-443-53-16, TEXAS. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Nov. 13, awarded Nov. 25. CD 11/19, under LB.

Texas Gulf Pipe Line Co., Abilene, Tex. Owner Builds. Approx. $486,000. 12 in crude oil pipe line, Trinity area, TEXAS. CD 11/17.

Gonzales County Telephone Co-operative, Gonzales, Tex. Purchase and Hire. $95,000, 100 mi. rural telephone pole lines, Gonzales, TEXAS. CD 10/15/51.

Southwest Texas Electric Co-operative, El Dorado, Tex., Owner Builds, $80,000, 58 mi. rural distr. lines, Schleicher Co., TEXAS. CD 6/9/50.

Farmers Electric Co-operative, Greenville, Tex. Purchase and Hire. $129,000, rural distr. lines, Greenville, TEXAS. CD 10/30/51.

▲† **T. C. Bateson Constr. Co.,** Irwin-Keasler Bldg., Dallas, Tex., CA. $2,586,875. maintenance hangar, for B-36 aircraft, Carswell Air Force Base, ENG. 41-443-53-13, FORT WORTH, TEX. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Oct. 29, awarded Nov. 25. CD 11/5, under LB.

City, Greenville, Tex., Force Account. $55,000, c.i. water mains, distr. lines, GREENVILLE, TEX. CD 6/14/51.

City, Greenville, Tex., Own Forces. Approx. $95,000, widen., asph. paving Johnson and Wellington Sts., GREENVILLE, TEX. CD 11/25, under LB.

City, Greenville, Tex., Force Account. $100,000, electric lighting line, GREENVILLE, TEX. CD 6/14/51.

† **Harwell & Harwell,** Box 177, San Antonio, Tex., LB, $825,000, high horse power conventional reciprocating engine-test facilities, Serial No. IFB 41-603-53-13-B, KELLY AIR FORCE BASE, TEX. U. S. Govt., c/o Air Force Contg. Officer, SAAMA, San Antonio, Tex. Bids Nov. 19. CD 10/27.

City, City Hall, Own Forces, $60,000, sanitary sewers, LA PORTE, TEX.

Lubbock Co., Court House, Lubbock, Tex. Own Forces. $75,000, open drainage, LUBBOCK, TEX. CD 7/25.

Lubbock Co., Court House, Lubbock, Tex., Force Account. $90,000, some farm to market road constr., LUBBOCK, TEX. CD 7/22.

Station KTUB, Lubbock, Tex., Purchases, Day Labor. $165,000, television station, LUBBOCK, TEX. CD 11/14.

Max Tidmore Constr. Co., 1902 Avenue M, Lubbock, Tex. CA. $164,000, television station, LUBBOCK, TEX., Bryan Radio & Television, Inc., c/o Joe H. Bryant, 1803 Broadway, Lubbock, Tex. Awarded Nov. 22. CD 10/30.

South Texas Plains Electric Corp., Lubbock, Tex. Force Account. **$100,000**, some rural electric distr. line extens., LUBBOCK, TEX. CD 9/24.

† **Newport News Shipbuilding & Dry Dock Co.**, Newport News, Va. CA **$835,800.** three 8,400 hp. hydraulic turbines for Little Porcupine power plant, Missouri-Souris Div., Missouri River Basin Proj., Spec. DS 3793, MONTANA. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids Oct. 30, awarded Nov. 21. CD 11/10, under LB.

† **D. M. Manning**, Hysham, Mont., CA, **$115,297,** constr. 15 mi. drains, Shoshone Proj., Heart Mountain division, Spec. 601C-29, WYOMING. Bureau Reclamation, Dpt. Interior, Cody, Wyo. Bids Nov. 18, awarded Nov. 20. CD 10/30.

† **U. S. Eng.**, 1709 Jackson St., Omaha, Neb., cancelled bids to have been opened Nov. 21, sighting station, QQ range and synthetic gunnery training bldg., Lowry Air Force Base, Inv. 25-066-53-60, DENVER, COLO. CD 10/28.

John H. Keller, 3613 E. 44 Ave., Denver, Colo., CA, **$505,978.** sewage treatment plant, ENGLEWOOD, COLO. Town, Englewood, Colo. Bids Nov. 10, awarded Nov. 24. CD 11/28, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Fischer & Frichtel, Inc., 8904 Lackland Rd., Overland 14, Mo. Owner Builds. Est. **$800,000.** one hundred and twenty 1 story RESIDENCES, concrete fdns., Frost Ave. in Frostwood subdivision ¼ mi. east of Graham Rd., BERKELEY (ST. LOUIS 21 P.O.), MO.

John G. Gutman Constr. Co., 1301 S. Vandaventer Ave., St. Louis 10, Mo. CA. 2 story, 60x143 ft., 17x22 ft., brick, rein.-con., parochial grade SCHOOL and AUDITORIUM, N. Florrissant and Bisseli Aves., ST. LOUIS, MO. Holy Name of Jesus Catholic Parish, Very Rev. Msgr. John J. Martin, pastor, 2047 E. Grand Ave., St. Louis, Mo. Bids Nov. 21. CD 11/10.

▲† **Eckert-Fair Constr. Co.**, 1307 National City Blvd., Dallas, Tex., LB. **$2,491,868,** 2 story, bsmnt. ACADEMIC BLDG., ENG. 34-066-53-49, FORT SILL, OKLA. U. S. Eng., P.O. Box 61, Tulsa, 2, Okla. Bids Nov. 21.

▲ **Lippert Bros. Co.**, 2800 N. Santa Fe St., Oklahoma City 5, Okla. CA **$1,214,027.** Negro High SCHOOL, Northeast 8 and Eastern Sts., OKLAHOMA CITY, OKLA. Bd. Educ., 408 N. Walnut St., Oklahoma City, Okla. Bids Nov. 18, awarded Nov. 24. CD 11/24, under LB.

J. D. Odom, P.O. Box 774, Austin, Tex., LB. **$588,807,** est. $500,000. 5 story, brick, tile, concrete plaster HOSPITAL addn., for 42-beds, AUSTIN, TEX. Seton Hospital Corp., c/o Sister Basil, pres., 600 W. 26 St., Austin, Tex. Bids Nov. 24. CD 11/12.

John W. Phillips, 324 Parr St., Corpus Christi, Tex., CA. **$315,500,** Home for the Aged, CORPUS CHRISTI, TEX. Carmelite Sisters, St. Josephs Home for the Aged, 901 N. Almeda St., Corpus Christi, Tex. Wade, Gibson & Martin, 921 Prof. Bldg., Corpus Christi, Tex., archts.

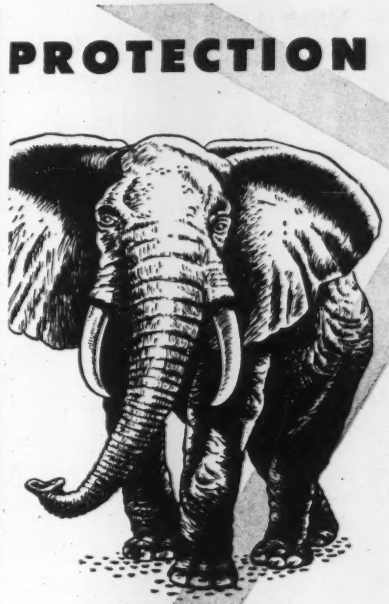
▲ **Texas Gulf Constr. Co.**, 2215½ Avenue C, Galveston, Tex. CA. **$1,200,000.** EDUCATIONAL BLDG., NURSES HOME, GALVESTON, TEX. St. Mary's Infirmary, 715 Market St., Galveston, Tex. I. E. Loveless, 102 S. Robertson St., Beverly Hills, Calif., archt. CD 7/11/49.

▲ **Galveston Wharves**, 2324 Strand St., Galveston, Tex., cancelled bids to have been opened Jan. 3, large warehouse across 37th St. Pier, GALVESTON, TEX. **$1,500,000.** CD 11/25.

Boyker & Vest & Assoc., 4637 Maple St., Houston, Tex. Owner Builds. **$312,500,** 7 one and two story masonry DWELLINGS, HOUSTON, TEX. CD 11/14.

Schneider Constr. Co., 3004 W. Dallas St., Houston, Tex. CA. **$198,620.** WAREHOUSE, HOUSTON, TEX. Swifts Cotton Oil, 544 Waverly St., Houston, Tex. CD 11/19.

(Continued on page 95)



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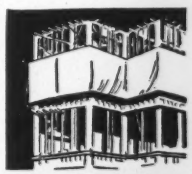

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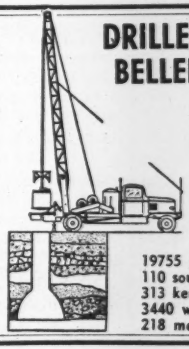

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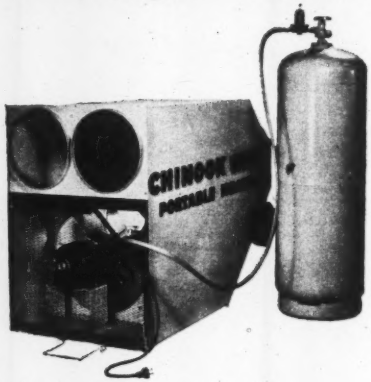

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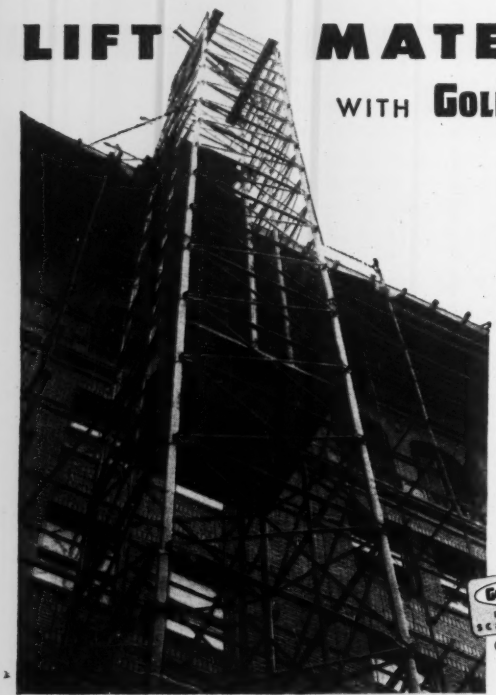

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38-21 12th Street, Dept. ENR, Long Island City 1, N. Y.
West Coast Plant: 6931 Stanford Ave., Los Angeles 1, Calif.

(Continued from page 93)

A. L. Bridges, Lubbock, Tex., CA. $87,150, PLANT, mfg. awnings and canvas products, LUBBOCK, TEX. A. E. Quest & Sons, 3105 Avenue H, Lubbock, Tex., Miller Co., 1312 Avenue Q, Lubbock, Tex., archt.

South Texas Plains Electric Corp., Lubbock, Tex. Purchase and Hire. $100,000, electric sub-station, southside of county; $135,000, electric sub-station, northside of county, LUBBOCK, TEX. CD 9/24.

Harold M. Griffith, New Braunfels, Tex., Force Account. $375,000, 50 DWELLINGS, NEW BRAUNFELS, TEX. CD 11/25.

† **George A. Rutherford,** P.O. Box 771, Albuquerque, N. M., CA. $433,177, incl. Alt. 4, 5, 6A, 6E, constr. five 3-bedroom DUPLEXES, 9 two-bedroom duplexes and one fire house, stone, masonry, frame constr., SHIPROCK, N. M. Bureau Indian Affairs, Dpt. Interior, Interior Bldg., 19 and C Sts. N.W., Wash., 25, D. C. Bids Nov. 20, awarded Nov. 21. CD 10/17.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Calif., San Bernardino**—B.A. 12/23—U. S. Eng., 751 S. Figueroa St., Los Angeles, supporting utilities at Norton Air Force Base, water, steam, sewer and electrical work, ENG 04-353-53-55. $460,000. CD 11/13/51.

† **Oregon**—B.A. 12/23—U. S. Eng., 628 Pittock Block, Portland, Zone 5, mfg. and del. Government Moorings, Portland, 6 fabricated pipe line pontoons complete with pipe saddle bases, CIVENG 35-026-53-89.

† **Washington**—B.A. 12/23—Bureau Reclamation, Dpt. Interior, Coulee Dam, drilling for stabilization of right bank, Grand Coulee Dam, Spec. DC 3852. M. W. Straus, comm.; adv. ENR 12/11. CD 9/26/51.

▲ **WASHINGTON**—B.A. 12/23—Washington Toll Bridge Auth., Olympia,

Pierce Co.—bridge over Hale's Passage to Fox Island. $1,000,000. C. E. Andrew, ch. consult. engr. CD 7/22.

† **Wash., Spokane**—RAILROAD SPURS—B.A. 12/23—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, recessing railroad spurs, Fairchild Air Force Base, ENG 45-108-53-66. Extended date.

† **California**—B.A. 1/6—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Antioch, motor control equipment assemblies for fifth pumping unit at each of Contra Costa Canal Pumping Plants, No. 1, 2, 3 and 4, Delta Div., Central Valley Proj., Spec. DS 3846. CD 4/20/45, under Earthwork, Waterways.

† **Oregon**—B.A. 1/6—U. S. Eng., 628 Pittock Block, Portland, Zone 5, design, mfg., and deliver f.o.b. Lowell, Ore., one 100-ton double trolley, electric motor-operated overhead traveling bridge crane and appurtenances, CIVENG 35-026-53-90.

BIDS ASKED—BUILDINGS

† **Calif., Monterey** — SCHOOL — B.A. 12/19 — Twelfth Naval Dist., San Bruno, two rein.-con. Engineering School buildings, Naval Postgraduate School NOY 75205, Spec. 36097. Plans deposit $100. Skidmore, Owings & Merrill, 1 Montgomery St., San Francisco, archts. CD 1/3.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Sather & Sons,** Yardley, Wash., LB, $178,057, replacing municipal bathing beach, Sandpoint, Inv. 53-24, IDAHO. U. S. Eng., 4735 E. Marginal Way, Seattle, Wash. Bids Nov. 25. CD 11/19.

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix,

Fisher Contg. Co., Box 4035, Phoenix, Ariz., CA. LB. $109,714, wid'n. and bit. plant mix 2.5 mi. roadway Indian School Rd., Maricopa Co. Bids Nov. 21. CD 11/13.

† **Eiford Constr. Co.,** 218 Unity St., Bellingham, Wash. LB. $61,640, est. $41,356, maintenance of bank protection works Stillaguamish River, Silvana, CIVENG 45-108-53-30, WASHINGTON. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Nov. 7. CD 10/22.

▲† **P. S. Lord Mechanical Contractors,** 4507 S. E. Milwaukee St., Portland, Ore., CA, $1,398,000 two rein.-con. pumping plant structures on Columbia River inside Hanford Works barricades, RICHLAND, WASH. Atomic Energy Comm., Hanford Operations Office, Richland, Wash. Bids Nov. 18. CD 11/25, under LB.

Hart Constr. Co., 3536 E. 11 St., Tacoma, Wash., LB $202,820, dredging, bulkheads, mooring floats, paving and utilities for fishing boat haven TACOMA, WASH. Port of Tacoma, Portacoma Rd., Tacoma, Wash. Bids Nov. 24. CD 10/29.

▲† **Sound Constr. & Eng. Co.,** 1300 Aloha St., Seattle, Wash., LB, $2,612,513, six three story, 30x222 ft., rein.-con. barracks, 79x111 ft. rein.-con. cold storage bldg. and 1 story, 120x261 ft. and 101x193 ft. rein.-con. subsistence bldg., Ault Field, Spec. 35603 WHIDBEY ISLAND, WASH. P. Wks. Officer, Thirteenth Naval Dist., 1611 W. Wheeler St., Seattle, Wash. Bids Nov. 26. CD 11/7.

† **George Chicha Co.,** 2917 E. Sharp St., Spokane, Wash. LB. $199,437. place filter material by tunneling and backfilling, left abutment, McNary Dam, CIVENG. 45-164-53-42, OREGON. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Dec. 2. CD 10/28.

OREGON—State Hy. Comn., Highway Bldg., Salem,

Intercity Sand & Gravel Co., Eugene, Ore. LB $251,647. grading, paving 2.18 mi. McKenzie Hy., FAP F 117 (17), Lane Co. Bids Nov. 24.

OREGON—State Hy. Comn., Highway Bldg., Salem,

R. E. Meade & Co., Grants Pass, Ore. CA $88,414. four concrete viaducts Pacific Hy., FAP BFI 189 (2), Douglas Co.; CA $76,666. 3 concrete structures 90 ft., 88 ft., 42 ft. Pacific Hy., FAP BFI 189 (12), Douglas Co. Bids Nov. 25, awarded Nov. 26.

OREGON—State Hy. Comn., Highway Bldg., Salem,

R & M Constr. Co., Central Point, Ore. CA $74,998. 2 concrete viaducts 100 ft., 197 ft. Pacific Hy., FAP BFI 189 (1), Douglas Co. Bids Nov. 24.

OREGON—State Hy. Comn., Highway Bldg., Salem,

Rogers Constr. Co., 11760 N.E. Glisan St., Portland, Ore. CA. $61,435. grading, paving 0.72 mi. Banfield Expressway, FAP BFI 323 (5), Multnomah Co.;

C. H. Grimstad & Vandervelt, Astoria, Ore. CA $183,297. grading, paving 1.17 mi. Oregon Coast Hy., FAP F 128 (6), Douglas Co. Bids Nov. 24.

OREGON—State Hy. Comn., Highway Bldg., Salem,

Porter W. Yett, 6500 N.E. Ainsworth St., Portland, Ore. CA $106,535, paving 2.78 mi. Coos River Hy., FAP S 5 (4), Coos Co.;

Roy L. Houck & Sons, Salem, Ore. CA $60,272. grading, paving jct. roadways West Portland-Hubbard Hy., FAP F-FI 303 (7), Marion Co. Bids Nov. 25, awarded Nov. 26.

Pioneer Telephone Co-operative, Philomath, Ore. rejected bids Oct. 31, 58.12 mi. telephone system, Benton, Lincoln and Lane Counties, OREGON. LB $81,691. CD 11/7, under LB.

† **U. S. Eng.,** 4735 E. Marginal Way, Seattle 4, Wash. cancelled bids to have been opened Dec. 3, railway facilities, grading, in industrial areas, Eng 45-108-53-50 CAMP WHITE, ORE. CD 10/28.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

Ukropina-Polich-Kral, P. O. Box 105, San Gabriel, Calif., CA, $2,559,019, grading 3.8 mi., 5 bridges on Los Angeles River Freeway between 223 St. and junction with Atlantic Ave. Los Angeles Co. Bids Nov. 6, awarded Nov. 25. CD 11/18, under LB.

▲ **Bechtel Corp.,** 220 Bush St., San Francisco, Calif., CA, pressure pumping station enlargement;

Engineers Ltd.; Pipeline Co., 225 Bush St., San Francisco, Calif., CA, constr. pipe line;

Consolidated Western Steel, 141 Battery St., San Francisco, Calif., CA, furnishing steel pipe for 84-mi. 34 in. steel pipe line loops (gas) at 4 locations on Topok-Milpitas Gas Transmission line near Milpitas, CALIFORNIA. Pacific Gas & Electric Co., 245 Market St., San Francisco, Calif. Total est. $16,800,000. Awarded Nov. 25. CD 3/7.

A. Teichert & Son Inc., 1931 Stockton Blvd., Sacramento, Calif., CA, $505,338, eastern storm water separation project, SACRAMENTO, CALIF. City, City Hall, Sacramento, Calif. Bids Nov. 13 awarded Nov. 24. CD 11/24, under LB.

City, 157 "D" St., Upland, Calif., rejected bids Nov. 7, constr., reconstr. shafts and tunnels, UPLAND, CALIF. LB. $92,925. CD 11/19, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Northwest Material & Development Co., 6000 N. Greenwood Blvd., Spokane, Wash., Day Labor, $513,000 57 HOUSES, SPOKANE, WASH.

▲ **Carson Park Mutual Homes No. 5,** Box 8986, Long Beach, Calif. Owner Builds, $1,318,630, 162 DWELLINGS, Harvey Way, McMaines St., Bedline Dr., Schrall St., BELLFLOWER, CALIF. Paul J. Duncan, 13310 Moorpark St., Sherman Oaks, Calif., archt.

Zimmer & Co., 1227 W. Las Tunas St., San Gabriel, Calif., CA. $90,000, concrete block STORAGE, DOMINQUEZ, CALIF. Al & Lillian Levinson, 5555 E. Slauson Ave., Los Angeles, Calif.

Landis Bldg. & Investment Co., 9363 Wilshire Blvd., Beverly Hills, Calif., CA. $738,000, 82 stucco, frame, DWELLINGS, Mountain Ave., Doane St., Charleston Pl., LOS ANGELES, CALIF. Terrace Corp., 1, 2 and 3, 9363 Wilshire Blvd., Los Beverly Hills, Calif.

† **Simpson Constr. Co.,** Box 330, Van Nuys, Calif., LB. $161,616, additions to various buildings at California Institute of Technology, ENG. 04-353-53-45, PASADENA, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Nov. 20. CD 10/30.

CANADA

BIDS ASKED—BUILDINGS

Ont., Toronto—POSTAL STATION—B.A. 12/17—Dpt. P. Wks., Hunter Bldg., Ottawa, Postal Station "E" Davencourt Rd. $300,000. Plans deposit $100. A. E. Gardner, c/o owner, archt.

SOON LETS CONTRACT—BUILDINGS

Ont., Toronto—WAREHOUSE—Canada Starch Co., Ltd., Sun Life Bldg., Montreal, soon lets contract 1 story, 121x150 ft., street, brick warehouse, 1 story, part bsmnt., 32x83 ft. office section, Gerrard and Main Sts. $200,000. J. C. Day, 1434 St. Catherine St. W., Montreal, Que., engr. E. Bamberger, 1434 St. Catherine St. W., Montreal, Que., archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Chisholm Constr. Co., Ltd., College St., Antigonish, N. S., CA. $225,000, (first section) sewerage sys., CORNER BROOK, NEWFOUNDLAND, Water & Sewerage Corp. of Corner Brook, H. A. C. Northover, mgr., Corner Brook, Newfoundland. R. Del French, 7581 Upper Lachine Rd., Montreal, Que., engr. Awarded Nov. 21. CD 9/24.

S. McNally & Sons Ltd., 215 Rosseau Rd., Hamilton, Ont., LB, $51,754, 13,620 ft. 12 in. water mains in Eglinton Ave. and Don Mills Rd., WILLOWDALE, ONT. North York Twp., 5145 Yonge St., Willowdale, Ont. Bids Oct. 20. CD 10/10.

S. McNally & Sons, Ltd., 215 Rosseau Rd., Hamilton, Ont., LB, $201,270, 54 in. pipe, $36,125, 30 in. pipe, storm sewers in various streets, WILLOWDALE, ONT. North York Twp., 5145 Yonge St., Willowdale, Ont. Bids Oct. 23. CD 10/10.

Municipality, Cap de la Madeleine, Que., Day Labor, Own Forces, $70,000, sidewalk construction on various streets, CAP DE LA MADELEINE, QUE. L. Lupien, City Hall, city engr.

BUILDINGS

LOW BIDS AND CONTRACTS

Hill-Clark-Francis Ltd., 14 Whitewood Ave., New Liskeard, Ont., CA, $210,000, 2 story, bsmnt., 103x152 ft., concrete, brick WAREHOUSE, Trout Lake, NORTH BAY, ONT. Province of Ontario, Dpt. P. Wks., Toronto, Ont.

Bennett Pratt Ltd., 5 Maple Leaf Dr., Weston, Ont., CA, $774,055, Riverdale COLLEGIATE addn., alterations, TORONTO, ONT. Toronto Bd. Educ., 155 College St., Toronto, Ont. Awarded Nov. 24. CD 11/20, under LB.

Roland Lariviere, 139 Loranger St., Cap de la Madeleine, Que., CA, $200,000, repairing PLANT, CAP DE LA MADELEINE, QUE. Aluminum Rolling Mills Ltd., St. Laurent, Que. CD 11/21.

Corp de l'Ecole d'Agriculture de Mont Laurier, Mont Laurier, Que., rejected bids Sept. 15, three 2 story, bsmnt. SCHOOLS, MONT LAURIER, QUE. Est. $400,000. CD 9/8.

J. Denault, 375 Sanford St., St. Lambert, Que., CA, $700,000, 100 COTTAGES, VILLE JACQUES CARTIER, QUE. South Shore Suburban Homes, 1544 St. Georges St., Ville Jacques Cartier, Que.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **ALASKA**—Bureau P. Rds., Dpt. Interior, Juneau, Alaska, rejected bids Nov. 14, clearing, grubbing, grading and bridge 4.5 mi. Tongass Hy., Proj. 1-C4, D7, E5, H2, LB, $1,345,066. CD 10/29.

LATIN AMERICA

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Fish Engineering Corp.,** M & M Bldg., Houston, Tex. CA. $4,500,000. Cement mfg. PLANT, GIBARA, CUBA, Cemente Gibara, c/o Nester Galvez, c/o Banco Holquin, Gibara, Cuba. CD 12/1.

Proposed Projects

WATER SUPPLY

Ark., Fayetteville—City, Fayetteville, expanding, impv. water system supply $450,000. L. M. McGoodwin, Fayetteville, consult. engr. CD 6/4/48.

Ill., La Salle—City, City Hall, water supply system. $690,000. Warren & Van Praag, 253 S. Park St., Decatur, consult. engrs.

▲ **Ind., Evansville**—Bd. P. Wks., H. O. Roberts, mayor, City Hall, sewage treatment plant and sewerage sys. "West Side" Div. 1, Telkoepple Sewer $543,000 Divs. 2, treatment plant $1,780,000 (3) interceptors $1,240,000 (4) lift station, $275,000. Total est. $6,161,000. Consoer, Townsend & Assocs., 351 E. Ohio St., Chicago, Ill., consult. engrs. CD 6/16/49.

Kan., Russell—City, voted $700,000 bonds Nov. 4, WW extens., sewage plant. Wilson & Co., 223 N. Santa Fe St., Salina, consult. engrs. CD 10/24/49.

Okla., Duncan—City, voted bonds Nov. 18, water extens. $555,000. CD 9/26.

▲ **Tex., Corpus Christi**—Lower Nueces River Water Supply Dist. and City of Corpus Christi, City Hall bond election Dec. 13, earthen and concrete water retention dam on Nueces River, 22 mi. from Sinton, primarily as a domestic water supply for Corpus Christi, $13,000,000. Ambursen Eng. Co., M & M Bldg., Houston, consult. engr. CD 5/27.

Wyo., Laramie—City, City Hall, WW imprvs. $456,000.

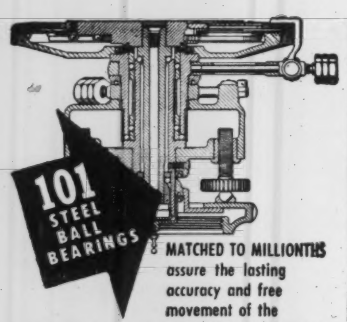
SEWERS, WASTE DISPOSAL

▲ **Mich., Ferndale**—City, R. F. Goodspeed, dir. P. Wks. Dpt., 21205 Woodward Ave., Zone 20, East Side Trunk Sewerage System. (5 year plan), $3,400,000. CD 9/28/44.

Okla., Sapulpa—City, voted bonds, sewage disposal plant. $400,000. Fell & Wheeler, 24 N. Elwood St., Tulsa, consult. engrs.

BRIDGES

Tex., Houston—City, City Hall, 900 Brazos St., rein.-con., earth Buffalo Dr. underpass, Waugh St., $300,000; Buffalo Dr. underpass at Shepherd St., $300,000. Lockwood & Andrews, Union Natl. Bldg., consult. engrs. CD 8/28.



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STREETS AND ROADS

▲ † **Alaska, Fort Richardson**—U. S. Eng., Anchorage, roads, streets, walks, etc. $1,988,000.

† **Alaska, Whittier**—U. S. Eng., Anchorage, roads, streets, walks, etc. $631,000.

Ont., Sarnia—City Council, W. C. Nelson, mayor, street and sidewalk reconstruction, $968,000 W. F. Greenwood, City Hall, city engr. CD 2/27.

EARTHWORK, WATERWAYS

▲ **California**—United Water Conservation District, 806 Railroad Ave., Santa Paula, $18,500,000 bond election Dec. 16, 2 dams and conduit system to carry water to Oxnard Plains and Pleasant Valley areas, Oxnard-Port Hueneme, Ventura Co. Julian Hinds, c/o owner, engr. CD 8/19.

▲ **Calif., El Centro**—Imperial Irrigation Dist., El Centro. Pilot Knob Hydro-Electric Plant and related projects on All-American Canal, $6,500,000. B. A. Weiss, c/o owner, engr. CD 12/27/44.

▲ † **Delaware and Maryland**—Army Bd. of Engineers c/o Chief Engineer, Bldg. T-7, Wash. 25, D. C., recommend deepening the Chesapeake & Delaware Canal by widening channel from 250 to 450 ft., replacing bridges with high level fixed structures, constr. cut-off bet. Reedy Point, Delaware and Chesapeake City, Md., correcting bends and anchorage basin at Elk River, Md. $30,700,000.

▲ † **New York**—Army Bd. of Engineers c/o Chief Engineer, Bldg. T-7, Wash. 25, D. C., recommend deepening channel of Hudson River from New York City to Albany,. from 300 to 600 ft. from New York to Kingston and 400 ft. at Albany, incl. turning basin at Albany, anchorages at Hudson and Stuyvesant. $96,000,000.

AIRPORTS

▲ † **Me., Limestone**—HOUSING, etc.—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., plans by Eaton W. Tarbell & Assoc., 84 Harlow St., Bangor, 700 family housing units, $1,000,000; plans by Alonzo J. Harriman, Inc., 292 Court St., Auburn, army support facilities, squadron operation bldg., armament shop, academic bldg.; water distr. sys., water storage sys., storage tanks, sewerage sys., exten. sewerage treatment plant, Limestone Air Force Base, Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., consult. engrs. CD 9/19/51.

▲ † **Mass., Bedford**—AIRFIELD FACILITIES—U. S. Eng., 857 Commonwealth Ave., Boston, roads, utilities, airfield paving, $3,000,000-$5,000,000, Whitman & Howard, 89 Broad St., Boston, consult. engrs.; dental clinic, Atwood Assoc., 687 Boylston St., Boston, consult. engrs.; plans by James H. Ritchie & Assoc., 135 Clarendon St., Boston, headquarters bldg. wing, Hanscom Air Force Base.

▲† **Tex., Kelly Air Force Base**—WAREHOUSE—U. S. Eng., 606 Santa Fe Bldg., Galveston, plans by Ford & Roggers and Addis E. Noonan Assoc., archts.-consult. engrs., 803 American Hospital & Life Insurance Bldg., San Antonio, ordnance warehouse, $550,000; warehouse and shop, $750,000; plans by Ralph H. Cameron, archt.-consult. engr., 1701 Transit Tower, San Antonio, warehouse, $1,500,000. CD 7/24/51.

▲† **Tex., Laredo**—AIR BASE—U. S. Eng., 606 Santa Fe Bldg., Galveston, plans by Blucher & Naismith, Inc., Richard S. Colley & Assoc. and A. A. Layendecker, consult. engrs. and archts., 128 N. Mesquite St., Corpus Christi, base maintenance shop, $150,000; chapel, officers mess, service club, link trainer bldg., wing headquarters, $350,000; aviation gasoline storage, jet fuel storage, $200,000; airfield lighting sys., $75,-000; parking area, Auxiliary Field No. 2, $225,000; parking apron exten. $250,000; new runway, $750,000; taxiway exten., $450,000, Lodal & Assoc. and Dowell Cullett, 1411 Transit Tower, San Antonio, consult. engrs. on latter 5 projects, above work at Laredo Air Force Base.

▲† **Alaska**—AIR BASE IMPRVS.—U. S. Eng., Anchorage, outside utilities, $742,000; roads and streets, $671,000; batallion headquarters and supply bldgs., $277,000; two gasoline dispensing stations, $29,000; organizational maintenance shop, $491,000; 12 ammo storage igloos, $445,000; storage oil motorlube, $127,000; access roads, $67,000; railroad, $209,000; outside utilities, $3,932,000; heat and power plant, $1,620,000; bomb storage bldg., $445,000; automotive shops, $770,000; bakery, $150,000; hardstands, $2,053,000; taxiway, $2,598,000; POL storage and dispensing, $1,670,000; refuel hydrants HB, $1,127,-000; telephone sys. $53,000; maintenance shop, $804,000; family housing, $1,013,000; heat and power distr. $2,339,000; utilities, $2,755,000; roads, $74,000; utilities, $2,338,000; vehicle warm storage, $279,000, Eielson Air Force Base.

▲† **Alaska**—AIR BASE—U. S. Eng., Anchorage, aqua sys. conversion, $425,000; utilities, $10,351,000; heat and power plant, $9,100,000; UHF radio air/ground facility, $46,000; apron parking, $8,415,000; refuel hydrants MB $958,000; storage AC $497,000; jet fuel storage AC $199,000; telephone sys. $188,000; AM dorm imprv. $696,000; family house, $5,733,000; heat and power distr. $2,100,000; cold storage, $204,-000; 200,000 sq. ft. warehousing, $1,420,000; vehicle storage, $134,000; vehicle warm storage, $60,-000; 400-bed hospital, $9,800,000; Elmendorf Air Force Base. CD 11/16/51.

▲ † **Alaska**—AIR FORCE PROJECTS—U. S. Eng., Anchorage, barracks, $4,057,000; hydrant refuel jet, $1,512,000; relocate POL facilities, $470,000; BOQ officer, $336,000; outside utilities, $4,115,000; shop vehicle maint. $1,359,000; ASR (CPN-18), $88,000; ILS $46,000; GCA (FPN-16), $62,000; UHF $37,-000; hardstands, $70,000; taxiway, $35,000; lubeoil storage area, $151,000; 56,000-bbl storage AC $328,-000; telephone sys. $92,000; parachute repair, $139,-000; family housing, $2,872,000; fire station structure, $96,000; utilities, $389,000; 3,600 h.p. heating plant, $907,000; utilities, $2,072,000; dispensary, $50,000; 20,000 sq. ft. supply bldg. $168,-000; 20,000 sq. ft. warehouse, $167,000; ordnance storage igloo, $221,000; enlisted men's post exchange, $95,000; ammunition storage facilities, $576,-000; maintenance shop for army items, $228,000; outside utilities, $592,000; 80 family quarters, $1,277,000; roads, streets, walks, etc. $617,000; battalion headquarters and supply bldg., $113,000; ordnance maintenance shop, $491,000. Following tactical troop and support facilities: 200-man barracks with 2 mess halls, $1,156,000; 6,000 sq. ft. batallion headquarters and supply, $126,000; bachelor officers' quarters, $158,000; 25,000 sq. ft. organizational maintenance shop, $416,000; 2 gasoline dispensing stations, $25,000; 0.25 mi. permanent roads, $53,000; utilities, $210,000, Ladd Air Force Base.

PUBLIC BUILDINGS

▲ **Ala., Huntsville**—HOSPITAL—Huntsville Hospital Bd., Huntsville, hospital addn. $1,050,000.

▲ **Calif., Los Angeles** — SCHOOL — Los Angeles School Dist., 1425 S. San Pedro St., plans by Kistner, Wright & Wright, 816 W. 5 St., Airport Junior High School, $2,000,000. CD 6/13.

▲ **Colo., Boulder**—DORMITORY—University of Colorado, Campus, Boulder, plans by Peterson & Linstedt, 624 W. 14 Ave. Denver, 2 and 3 story, brick dormitory, $1,000,000. Trautwein & Howard, 1411 Walnut St., Phila., Pa., consult. engrs. CD 12/28/45.

▲ **Ga., Savannah**—SCHOOL—Chatham Co. Bd. Educ., Court House, Traffic Circle High School, $750,000; Southeastern High School, $750,000; A. E. Beach High School addn., $375,000; Woodville School addn., $300,000. CD 12/51.

▲ **Ill., Granite City**—SCHOOL—Community Unit School Dist. No. 9, G. W. Holscher, genl. chn., Junior High School addn., Logan and Marshall School addns., Logan School addn. $1,000,000.

Ind., Indianapolis—COUNTY HOME—Bd. Comrs. Marion Co. R. T. Combs, aud., Court House, 3 story, bsmnt., brick, "Julietta" County Home remodeling and addn. $750,000.

▲ **Md., Baltimore**—SCHOOL—City, Bureau Bldg. Constr., 410 Municipal Bldg., plans by Taylor & Fisher, 1012 N. Calvert St., brick, concrete, steel Pimlico Junior High School, incl. 6 shops, library, gymnasium, auditorium, etc., Park Heights and Kenoak Ave. $2,500,000. Henry Adams, Inc., 2315 St. Paul St., mech. engr. R. E. L. William, c/o owner, bldg. constr. engr. CD 4/1/52.

▲ **Md., Easton**—HOSPITAL—Easton Memorial Hospital, S. Washington St., plans by Jas. R. Edmunds Jr., 1025 St. Paul St., Baltimore, 4 story, brick, steel Easton Memorial Hospital addn., kitchen, dining room, power plant, $1,500,000, Jas. Posey & Assoc., 10 E. Pleasant St., Baltimore, mech. engrs. Alex. E. Forrest, 514 Park Ave., Baltimore, struct. engr. CD 3/15/51.

▲ **Md., Hagerstown**—SCHOOL—Bd. Educ., Washington Co., plans by McLeod & Ferrara, 1741 DeSales St. N.W., Wash., D. C., high school. $2,500,000.

▲ **Md., Rockville**—SCHOOL—Montgomery Co. Bd. Educ., Rockville, plans by McLeod & Ferrara, 1741 DeSales St. N.W., Wash., D. C., Junior High School, Bethesda. $1,500,000.

▲ **Md., Towson**—SCHOOLS—Baltimore Co. Bd. Educ., Aigburth Rd., plans by Smith & Veale Assoc., 2127 N. Charles St., Baltimore, Campfield Elementary School, Pikesville, $750,000; plans by Tyler, Ketcham & Myers, 513 Park Ave., Baltimore, Fenway Elementary School, Fenway Rd. and Norris Lane, near Middle River, $750,000; plans by Gaudreau & Gaudreau, 330 N. Charles St., Baltimore, Hawthorne Elementary School, Kingston Rd., Middle River, $800,000.

Mass., Cambridge—HOUSING—Cambridge Housing Auth., 51 Inman St., plans by Holmes & Edwards, Inc., 126 State St., Boston, 3 masonry buildings, Allston-Putnam and Pleasant Sts. $800,000. CD 1/26/50.

Mass., Everett—HOUSING—Everett Housing Auth., 48 Elm St., plans by William Drummey, 80 Boylston St., Boston, sixty-four 2 story, bsmnt., garden type veterans housing units, Mass 200-3. $800,000.

▲† **Mass., Wellfleet**—BARRACKS, etc.—U. S. Eng., 857 Commonwealth Ave., Boston, plans by Lloyd M. Hendrick, Main St., Buzzards Bay, barracks, combination admin. storage recreational bldgs., shops, roads, parking, Camp Wellfleet, $1,097,000. CD 10/10.

▲ **Mich., Adrian**—SCHOOLS—City, Bd. Educ., Adrian, plans by Louis C. Kingscott & Assoc., Inc., 511 Monroe St., Kalamazoo, 2 story, bsmnt., brick, steel McKinley Elementary School, $300,000; Northwest Heights School, $300,000; elementary school in Southern section, $640,000. CD 11/11.

▲ **Mich., Birmingham**—SCHOOLS—City, Bd. Educ., voted $3,000,000 bonds, Baldwin School, Torrey School, school in Beverly Hills Section, Swanson Assoc., Long Lake Rd., Bloomfield Hills, archts. CD 4/29 and 10/2.

▲ **Mich., Grand Rapids**—JAIL—Bd. Superv. Kent Co., defeated $1,200,000 bonds, 2 story, brick, steel, concrete county jail, Michigan Ave. S.W. CD 9/26.

▲ **Mich., Port Huron**—SCHOOL—City, Bd. Educ., plans by Wyeth & Harmon, Inc., 1602 Military St., 2 story, brick, steel school, Michigan and Dover Sts., $600,000; 2 story, bsmnt., brick, concrete elementary school, Malane District, $320,000; 2 story, bsmnt. brick, steel, concrete high school, Chippewa location, $750,000. CD 2/13/52.

▲ **Minn., Alexandria**—HOSPITAL—Douglas Co., P. L. Hintzen, aud., voted $1,000,000 bonds Nov. 4, hospital.

▲ **Mo., Kansas City**—SCHOOLS—Bd. Educ., c/o Dr. G. Dewey Smith, asst. supt., Library Bldg., plans by Hardy & Schmacher, Scarritt Ave., Kansas City, Mo., Dunbar School, $456,846; Martin School, $450,000; plans by Sigmund H. Sieben, Finance Bldg., Kansas City, Mo., East High School, $450,000; plans by Richard N. Wakefield, 6305 Brookside Pl., Kansas City, Mo., Linwood School, $900,000; plans by Peterson & Scharhag, 1103 E. Armour Blvd., Kansas City, Mo., Longan School, $800,000; plans by Neville, Sharp & Simon, 25 E. 12 St., Kansas City, Mo., Southeast High School addn., $750,000. CD 10/2.

▲ **O., Columbus**—LIGHT PLANT—City, City Hall, expansion municipal light plant by constr. annex and installing two 12,500 kw turbines, generators and addnl. boiler. $2,500,000.

Okla., Blackwell—HOSPITAL—City, plans by Coston & Frankfurt, 323 Madison St., Oklahoma City, 4 story Blackwell General Hospital. $750,000. CD 4/1.

▲ **Ore., Salem**—WING—State Bd. Control, Capitol, Salem, Central wing for State Hospital. $3,500,000. CD 5/16/51.

▲ **Pa., Monroeville**—HIGH SCHOOL—School Dist. of Monroeville, mail Pitcairn, plans by Walter Schardt, 6101 Penn Ave., Pittsburgh, 1 and 2 story brick, block, steel Senior-Junior High School. $2,500,000.

▲ **Pa., Phila.**—SCHOOLS—Bd. Educ., 21 and Winter Sts., plans by Antrim & Etter, 117 S. 17 St., Phila., Franklin High School alterations, $1,000,000, CD 5/26/50; plans by Max W. Bieberbach, Jr., 843 N. 19 St., Phila., William Dick School, 25 and Diamond Sts., $1,500,000, CD 1/4; plans by Oscar Stonorov, 1621 Chestnut St., elementary School, Ridge Ave. near Midvale Ave., $750,000; elementary school, west of Roosevelt Blvd., $1,000,000, Hackett School replacement, $1,000,000; Schaeffer-Wistar School replacement, $1,000,000; elementary school, Bustleton Ave. and Comly St., $1,000,000; elementary school, Walnut Lane and Wayne Ave. $1,000,000; Senior High School, Bleigh and Algon Sts., $6,000,000; Comly Elementary School addns., $500,000; Adaire School replacement, $1,000,000; Ellwood School replacement, $1,000,000; Lambert Elementary School addn. $500,000; Elementary School, Mt. Pleasant and Rodney Aves. $1,000,000.

▲ **Pa., Pittsburgh**—HIGH SCHOOL—Municipal Auth. of Baldwin Twp. School Dist., Brentwood, Pittsburgh, plans by Altenhof & Brown, 1230 Park Bldg., 2 story, steel, brick and block South Junior High School. $1,250,000.

▲ **Tex., Amarillo**—SCHOOLS—Amarillo Independent School Dist., 508 Johnson St., bond election Dec. 13, Junior High School, $2,000,000; Elementary School No. 1, $450,000; Elementary School No. 2, $375,000; Elementary School No. 3, $550,000; heating plant, $225,000; gymnasium, $350,000; new classrooms (elementary), $700,000; misc. classrooms, (other than elementary), $450,000; Elementary School No. 4, $300,000; Elementary School No. 5 $500,000; high school remodeling and addn., $750,000. CD 11/17.

▲ **Tex., Bryan**—COURT HOUSE, etc—Brazos Co., Court House, Bryan, courthouse and jail. $1,000,000. CD 8/8/49.

▲ **Tex., Dallas**—POLIO HOSPITAL—Dallas Polio Institute, c/o Fred F. Florence, chn., 6525 Turtle Creek St., 150-bed polio hospital. $2,000,000.

▲ **Tex., Odessa**—SCHOOLS—Ector County School Dist., Odessa, voted bonds Nov. 15, Elementary Schools, No. 1, $325,000; No. 2, $375,000; No. 3, $350,000; school addn., $300,000; Junior High-Elementary School, $400,000; Junior High School, $846,000.

Va., Arlington—SCHOOL—Arlington County School Bd., 1426 N. Quincey St., plans by McLeod & Ferrara, 1741 Desales St. N. W., Wash., D. C., masonry Ashlawn Elementary School. $700,000.

▲† **Va., Fort Belvoir**—HOSPITAL—U. S. Eng., 1st and Douglas Sts., Wash., D. C., plans by York & Sawyer, 101 Park Ave., New York, N. Y., station hospital. $4,000,000. Weiskopf & Pickworth, 2 W. 45 St., New York, N. Y., consult. engrs. CD 6/10.

▲ **Va., Lynchburg**—HOSPITAL—Lynchburg Hospital Auth., City Hall, plans by Samuel H. Hannaford & Son, Dixie Terminal Bldg., Cincinnati, O., hospital. $3,500,000. CD 11/10.

▲ **Va., Norfolk**—CLASSROOM, etc.—Virginia State College, Petersburg, plans by J. Binford Walford & O. Pendleton Wright, 103 E. Carey St., Richmond and A. Ray Pentecost, Jr., Nick Wright Bldg., State College exten., classroom, science and other bldgs. $2,000,000.

▲ **Va., Petersburg**—LIBRARY, etc.—Virginia State College, Petersburg, plans by J. Binford Walford & O. Pendleton Wright, 103 E. Cary St., Richmond, Library, $1,000,000; dormitories for single women teachers, $300,000; dining hall, $1,000,000; 2 story bsmnt., structural steel, masonry men's dormitory, $500,000.

▲ **Va., Portsmouth**—HIGH SCHOOL—Portsmouth School Bd., City Hall, plans by J. Binford Walford & O. Pendleton Wright, 103 E. Cary St., Richmond, 1, 2 and 3 story bsmnt., Woodrow Wilson High School, gymnasium-auditorium, library. $3,500,000.

▲ **Va., Richmond**—STATE OFFICE—Commonwealth of Virginia, State Office Bldg., plans by Merrill C. Lee, 601 E. Franklin St., Marcellus Wright & Son, 100 E. Main St. and Baskervill & Son, 2313 W. Cary St., state office bldg. $3,000,000. CD 11/21.

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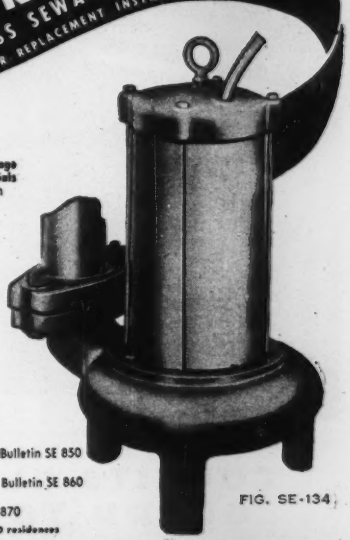

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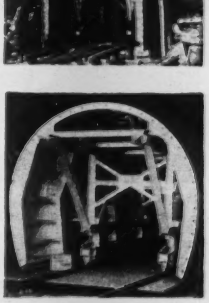

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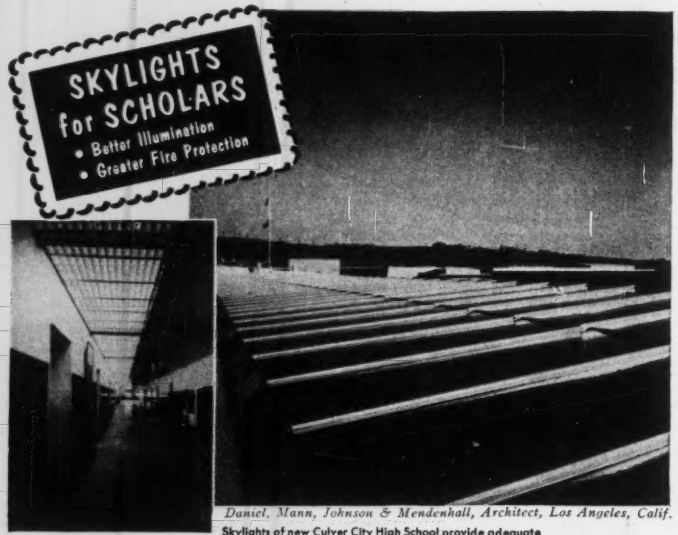

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▲ **Va., Richmond**—SCHOOLS—Henrico County School Bd., 22 and Main Sts., preliminary Studies of School construction program to cover next 6 years. To include 16 new elementary schools and addns. of 63 rooms to present schools. $10,000,000. CD 9/29.

Va., Williamsburg—HIGH SCHOOL—James City County School Bd., Williamsburg, defeated bonds Nov. 14, high school and elementary school. $800,000. Williams, Coile & Blanchard, 3415 Virginia Ave., Newport News, archts. CD 10/28.

▲† **Alaska, Big Delta**—BUILDINGS, etc.—U. S. Eng., Anchorage, central heat and power plant, $2,152,000; 200-man enlisted men's barracks, $1,068,000; bachelor officers quarters, $166,000, officers' mess $288,000, fire station, $151,000, organizational maintenance shop, $1,032,000, station warehouse, $2,353,000, infirmary $426,000, Arctic Training Base Lab $144,000, ATB shops, $389,000, AIS admin. and classrooms, $277,000, ATB administration $188,000, AIS warehouse and repair, $223,000, family quarters for non-commissioned officers, $2,916,000; family quarters for commissioned officers, $934,000, family quarters (FO) $376,000, family quarters, (COL) $106,000, community center, incl. post office, commissary, library and bank, $419,000, post headquarters and telephone exchange, $151,000, guard house, $86,000, enlisted men's service clubs (2) $352,000, non-commissioned officers' club, $213,000, gymnasium, $648,000, ATB vehicle storage, $336,000, main PX $109,000, theater and chapel $124,000, quarters for families of 96 officers, $1,680,000, nine ammo storage igloos and warehouse, $389,000, indoor training facilities, $638,000, enlisted men's barracks, $576,000; outside utilities, $1,465,000, post engineer facilities $268,000 grease and oil storage and gas station, $62,000; drum fuel facilities, $8,000, incinerator, $46,000, ammo storage igloos, $129,000, fences for Arctic Training Base area, $38,000, grease and oil storage for Arctic Training Base, $22,000, gas and diesel oil dispensing station, $31,000, outside utilities (second increment) $665,000, chemical test center, $251,000, fuel storage and dispensing rack, $7,000, outside utilities (second and third increment) $105,000, roads, streets and walks, $1,020,000; paved apron at Arctic Training Base, $22,000, paved apron, $8,000.

▲† **Alaska, Fort Richardson**—BUILDINGS—U. S. Eng., Anchorage, dispensary and dental clinic, $424,000; quartermaster's warehouse, $662,000; post exchange, $144,000; 220,000 sq. ft. general depot warehouse, $2,272,000; locomotive shop, $245,000; refrigerated warehouse, $1,033,000; LCL warehouse, $220,000; guard house, $331,000; chapel with Sunday School, $246,000 POL storage and packaging warehouse, $228,000; salvage yard and warehouse, $146,000; three civilian bachelor quarters, $413,000; two battalion headquarters supply bldgs., $239,000; 2 organizational maintenance shops, $8,470,000; 144 family quarters, $5,100,000; general depot headquarters bldg., $874,000; ammunition shop, $449,000; POL drum reconditioning plant, $375,000; post headquarters bldg., $550,000; plant and sope storage bldg., $44,000; general warehouse office and railroad spur, $800,000; ammunition storage general depot, $281,000; ammunition storage station, $70,000; POL lab general depot, $85,000; hardstand and parking area, $732,000; chemical storage, $117,000; hardstand general depot, $616,000; outside utilities, $1,004,000; four gasoline dispensing stations, ammo storage facilities, $874,000. CD 3/14/51.

▲† **Alaska, Kenai**—THEATER, etc.—U. S. Eng., Anchorage, theater and chapel, $115,000; vehicle maint. shop, $141,000; 2 post engineer shops, $228,000; combined Trn and Em NCO club, $210,000; 70 family quarters, $1,120,000; commissary, $14,000.

▲† **Alaska, Whittier**—FAMILY QUARTERS, etc.—U. S. Eng., Anchorage, 135-unit family quarters, $2,896,000; station storage warehouse, $329,000; freight handling equip. shop, $127,000; post headquarters and telephone bldg., $281,000; composite shop, $1,200,000; post engineer utility shop and shed, $50,000; bachelor civilian quarters, $144,000, 42 family quarters, $635,000. CD 7/12/51, under LB.

▲ **N. B., Woodstock**—HOSPITAL—Carleton Memorial Hospital. J. D. Winslow, chn., Woodstock, plans by Govan Ferguson, Lindsay, Kaminker, Langley & Keenleyside, 515 Jarvis St., Toronto, Ont., hospital. $1,000,000. CD 7/7/50.

▲ **Ont., Toronto**—HOSPITAL—Lakeshore Hospital Assn., Dr. A. E. Noble, vice-pres., Long Branch, hospital, Evans Ave. and Etobicoke River. $3,000,000. CD 12/2/51.

PUBLIC BUILDINGS

▲ **Ark., Little Rock**—HOSPITAL—Arkansas Baptist Hospital, 1700 W. 13 St., hospital addn. $1,250,000.

▲ **Calif., Inglewood**—DWELLINGS—Wagner Realty Co., 437 S. Robertson Blvd., Beverly Hills, plans by Martin Stern, Jr., 450 S. Beverly Dr., Beverly Hills, 240 dwellings. $4,000,000.

▲ **Calif., San Diego**—HOUSING—Dpt. Navy, San Diego, construct, manage and finance, Bayview Hills Housing. $4,000,000. Frank Hope & Assocs., 1447 6 Ave., archts.

▲ **Del., Wilmington**—SHOPPING CENTER—Five States Wonder Mile, Inc., c/o Don Loftus & Assocs., Box 187, plans by Albert D. Lueders, Arlington, Va., shopping center, Du Pont Highway. $25,000,000. General contract for first 6 stores awarded to Lewis-Skeel Constr. Co., P.O. Box 187, Wilmington, Del. CD 3/28/50.

▲ **Ga., Atlanta**—DOCTORS—Georgia Baptist Hospital, Boulevard Ave., doctors bldg. $1,500,000. CD 3/31/50.

▲ **Ill., Chicago**—HOSPITAL—Passavant Hospital, 303 E. Superior St., plans by Schmidt, Garden & Erikson, 104 S. Michigan St., hospital addn., and modernization of existing building. $3,000,000. CD 10/30/51.

▲ **Ill., Chicago**—HIGH SCHOOL—St. Xavier College & Academy, 4928 S. Cottage Grove Ave., plans by Naess & Murphy, 80 E. Jackson Blvd., Zone 4, high school, 103 and Central Park Ave. $1,000,000.

Ind., Kokomo—HOMES—Sycamore Village Homes, Inc., plans by John Lewis, Kokomo, 50 homes. $500,000.

▲ **Md., Baltimore**—HOSPITAL—Associated Jewish Charities, Monument and Eutaw Sts., plans by Jas. R. Edmunds, Jr., 1025 St. Paul St., Baltimore, 7 story, bsmnt., sub-bsmnt., Sinai General Hospital unit, tea room, obstetrical and gynecological bldg., parking areas. Total est. $16,000,000. Crout, Snyder & Crandall, 500 American National Bank Bldg., Baltimore, struct. engrs. Henry Adams Inc., 2315 St. Paul St., Baltimore, mech. engr. CD 10/12/51.

▲ **Md., Baltimore**—ENGINEERING—John Hopkins University, 34 and Charles Sts., plans by Palmer, Fisher, Williams & Nes, 1020 St. Paul St., 6 story, brick, rein.-con., steel U-shaped engineering bldg., incl. 3 story wings. $1,000,000. L. P. Kooken Co., 2017 Maryland Ave., mech. and struct. engrs.

▲ **Mass., Lexington**—RESIDENCES—Charles McLaughlin, 421 Highland Ave., West Somerville, 145 residences. $1,000,000.

▲ **Mo., Kansas City**—HOSPITAL—Trinity Lutheran Hospital, Elmer F. Pierson, chn., 30 and Wyandotte Sts., plans by Emil O. Bayerl, 20 W. 9 St., Kansas City, Mo., enlarging hospital, nurses dormitory, facilities, new entry, parking area. $1,000,000. CD 10/29.

▲ **Neb., Omaha**—HIGH SCHOOL—Sisters of Mercy, 1801 S. 72 St., plans by L. A. Daly Co., Insurance Bldg., Mercy High School, 48 and Pine Sts. $1,500,000. CD 3/26/47.

N. Y., Brooklyn—APARTMENT—Beach Property Corp., 97-27 64 Rd., Forest Hills, plans by Kavy & Kavovitt, Inc., 44 Court St., Zone 2, 6 story apartment, 1201-13 Ocean Parkway. $378,000.

N. Y., Queens Village—CHURCH, etc.—Our Lady of Lourdes, c/o Paul Mauch, archt., 64-89 82 Pl., Rego Park, 2 story church and rectory, Springfield Ave., northeast corner of 93 Ave. $725,000.

▲ **N. Y., Rye**—OFFICE—Standard-Vacuum Oil Co., 26 Broadway, New York, Zone 4, office on 26-acre tract, west side of Harrison Ave. near King St. $1,000,000.

▲ **O., Columbus**—SHOPPING CENTER—Don M. Caston & Son, 42 S. Fourth St., Third Unit, shopping center, Hamilton Rd., E. Broad St., known as "Town and Country East". $5,000,000.

Okla., Tulsa—OFFICE—Kewanee Oil Co., Kennedy Bldg., 3 story office, 14 and Boulder Sts. $750,000. W. W. Smith, c/o owner, engr.

▲ **Pa., Fallsington**—SHOPPING CENTER—Delpen Realty Corp., c/o Harry Thoens, Inc., 233 Broadway, New York 17, N. Y. plans by Morris Lapidus, 256 E. 49 St., New York 17, N. Y., shopping center, on 44 acre site on Lincoln Hy. near here to be called Falls Shopping Center. $6,000,000.

▲ **Pa., Pittsburgh**—SHOPPING CENTER—B. Thorpe Co., 954 Penn Ave., plans by Brandon Smith, 900 Century Bldg., 1 story, brick block, steel shopping center, North Versailles Twp. $3,000,000. CD 2/16/51.

▲ **Pa., Pittsburgh**—HOUSING—Town Development, Inc., 202 Carlton House, 7 story, bsmnt., 400-unit housing, Greentree. $4,000,000.

▲ **Pa., Pittsburgh**—ADMINISTRATION, etc.—Western Theological Seminary, 731 Ridge Ave., plans by Altenhof & Brown, 1230 Park Bldg., 1, 2 and 3 story, steel, brick, block administration and chapel. $1,500,000.

Tex., Denison—HOUSING—U. S. Eng., Box 61, Tulsa 2, Okla., construct, manage, finance, 100 unit housing, 109-acre tract, near here. $750,000.

▲ **Tex., Houston**—BANK and OFFICE—South Texas National Bank, 213 Main St., plans by Kenneth Franzheim, 2402 Crawford St., 20 story, bsmnt. bank and office. $9,000,000. CD 2/16/50.

▲ **Va., Portsmouth**—SHOPPING CENTER—McLean & Boyette, Inc., 803 Crawford St., plans by Lublin & McGaughy & Assoc., consult. engrs.-archts., 931 W. 21 St., Norfolk, 1 story masonry shopping center, parking area. $2,000,000.

▲ **B. C., Vancouver**—BANK, etc.—The Canadian Bank of Commerce, 698 W. Hastings St., plans by McCarter & Nairne, 1930 Marine Bldg., 8 story, rein.-con., structural steel, stone office and bank bldg., also changes to existing bldg. $1,500,000. CD 1/2/51.

INDUSTRIAL BUILDINGS

▲ **Ark., Arkadelphia**—COMPRESSOR STATION—Arkansas-Louisiana Gas Co., Slattery Bldg., Shreveport, La. compressor station. $2,147,470.

▲ **Mass., Springfield**—PLANT—Monsanto Chemical Co., 812 Monsanto Ave., polyvinyl chloride film plant, $2,685,000.

▲ **Mo., Pagedale (St. Louis 14 P. O.)**—WAREHOUSE, etc.—Metal Goods Corp., R. E. Grote, pres., 5239 Brown Ave., Zone 15, plans by Hugo K. Graf, 2825 Olive St., Zone 3, brick, steel, concrete, 150,000 sq. ft. warehouse, 1 story, 40,000 sq. ft. office, railroad spur, overhead cranes, etc. $1,500,000. CD 10/6.

▲ **Ont., Windsor**—PLANT—Fort Motor Co. of Canada, Ltd., 2780 Sandwich St. E., plant expansion. $32,500,000. CD 2/21/50.

▲ **Que., Montreal**—STATION—Canadian Pacific R.R., R. A. Emerson, ch. engr., Windsor Station, Zone 3, station addn., westward along St. Antoine to Mountain Sts. $1,500,000.

UNCLASSIFIED

▲ **Del., Talleyville**—RACE TRACK, etc.—Brandywine Raceway Assoc., Inc., North American Bldg., Wilmington, harness race track and grandstand. $1,500,000.

Ind., Evansville—TELEVISION STATION—WFBM Inc., 1330 N. Meridian St., Indianapolis, Zone 2, television station, $683,000. Gillett & Bergquist, National Press Bldg., Wash., D. C., consult. engrs.

Mo., St. Louis—TELEVISION STATION—Meredith Engineering Co., 1716 Locust St., Des Moines 3, Ia., television station, $873,000. Craven, Lohnes & Culver, Munsey Bldg., Wash., D. C., consult. engrs. CD 8/21.

N. Y., Buffalo—TELEVISION STATION—Copper City Broadcasting Corp., P. O. Box 386, Utica, television station, $831,000. George P. Adair, 1833 "M" St., Wash., D. C., consult. engr.

▲ **Ohio**—SUB-STATIONS—Cleveland Electric Illuminating Co., Public Square, Cleveland, electric power distr. sub-stations to link with Eastlake, O., Mentor Twp., $515,000; in Concord Twp. to link with Eastlake, $150,000; electric power transmission sub-station, connecting to 132,000 volt steel-tower transmission sys., in Fairport to link with Eastlake, $1,700,000.

Oklahoma—RURAL DISTRIBUTION LINES—Cotton Electric Co-operative, Walters, 150 mi. rural distr. lines and sys. imprvs., Cotton Co. $765,000. CD 6/13/51.

▲ **Oklahoma**—RURAL DISTRIBUTION LINES—Western Electric Co-operative, Anadarko, 73 mi. 69 kva lines and sub-station, Anadarko, Caddo Co. $1,367,000. C. H. Guernsey & Co., 2701 N. Oklahoma St., Oklahoma City, consult. engrs.

Ore., Portland—TELEVISION STATION—North Pacific Television, Inc., 604 Mead Bldg., television station, $853,000. Craven, Lohnes & Culver, Munsey Bldg., Wash. D. C., consult. engrs.

▲† **Alaska**—PIPE LINE—U. S. Eng., Anchorage, POL pipe line, coast to Fairbanks. $28,434,000. Fluor Corp., 360 E. 2nd St., Los Angeles, Calif., consult. engr. CD 11/16/51.

▲† **Alaska, Whittier**—UTILITIES—U. S. Eng., Anchorage, utilities, $4,649,000; railroad spur, $74,000; outside utilities, $560,000. CD 11/7/51.

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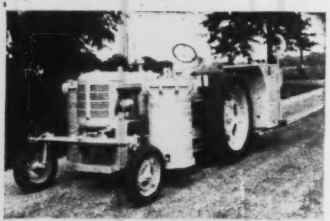

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UNIT PRICES

Grade crossing elimination Long Island, N. Y.

Only one bid was received by the New York Department of Public Works on a contract to eliminate the Long Island grade crossing at Massapequa. The $1,107,249 job, awarded to the Horn Construction Co., N. Y., consists of reconstruction with cement concrete pavement of 0.24 miles of affected existing streets, elevation of 0.98 miles of railroad track, construction of two steel girder railroad bridges, and construction of new railroad station facilities. The project which started Aug. 7 is to be completed by December 31, 1953. J. J. Darcy is the district engineer for the Department of Public Works.

Wage rates are: bricklayer, $3.25 per hr; pump operator, $2.75 per hr; and laborer, $1.90 per hr.

Bidders include:

1C Horn Const. Co., Inc., Merrick, L. I., N. Y... $1,107,249

Bids: 8-7-52 Items	Unit	Quantity	Unit Prices 1C
Clearing & grubbing	ls	1	$3,300
Compaction control building	ea	1	250.00
Furnish water equipment	ls	1	625.00
Applying water	M gal	600	3.00
Unclassified excavation	cy	15,000	2.00
Embankment in place	cy	95,000	0.75
Trench, culv & brl exc	cy	6,000	6.00
Trimming road section	lf	1,200	0.40
Preparing fine grade	sy	13,500	0.30
Vit clay pipe underdr, 3" dia	lf	520	0.01
Perf corr met pipe underdr 6" dia.	lf	600	2.00
Cast iron pipe, 4" dia.	lf	60	2.00
6" dia	lf	50	3.00
10" dia	lf	10	10.00
Reinf conc culv pipe, 18" dia	lf	500	4.50
24" dia	lf	2,500	7.00
Portland cement, type 2	bbl	9,500	4.00
Portland cement, type 3	bbl	1,000	5.00
Natural cement, type N	bbl	1,350	4.50
Cl 1A conc for structures	cy	1,250	65.00
Cl 1 concrete	cy	3,500	38.00
Bagged screened gravel	cy	400	11.00
Metal reinf for conc pvmnt	sy	7,500	0.85
Steel fabric reinf	sy	900	0.75
Longit jt suppts opt	ea	900	0.60
Transv jt suppts opt	lf	900	2.00
Longit jt suppts opt	ea	1,400	0.60
Bar reinf for structures	lb	205,000	0.18
Structural steel	lb	1,036,000	0.1625
Miscellaneous metals	lb	17,500	0.20
Abrasive stair treads	lf	560	3.00
1 pipe handrail	lf	400	2.00
3 pipe railing	lf	140	6.00
Foundation course gravel	cy	20	5.00
Bott course broken stone	cy	900	12.00
Cement concrete pavement	cy	1,900	15.00
Asph conc type 1A, opt	t	800	16.00
Bituminous material	gal	800	1.00
Membrane waterproofing	sy	700	2.00
Prot crse for memb wtrprfng	sy	700	3.50
Maint & prot of traffic	ls	1	4,375
Temp timber sheet piling	sf	10,000	0.01
Untreated timber test piles	lf	200	5.00
Precast concrete piles	lf	5,000	3.00
Furn equipment for driving piles	ls	1	1,875
Concrete curb, type K	lf	2,600	1.25
Catch basins, MH's & DI's	cy	70	75.00
Concrete sidewalk	sy	1,300	5.00
Timber and lumber	mfbm	2	500.00
Timber tie cribbing (temp)	sf	8,000	2.00
Top soil, furn & placed	cy	900	4.00
Seeding on prep areas	ac	1.0	500.00
Sodding	sy	100	2.50
Track installed and surfaced (cinder-ballast) (temp)	lf	9,200	6.50
(stone-ballast) (perm)	lf	8,100	8.00
Turnouts removed (exist & temp)	ea	3	325.00
Turnouts installed (temp & permanent)	ea	4	1,000
Crossover removed	ea	1	1,000
Crossover installed	ea	1	1.00
Guard rail installed	lf	1,650	0.75
Flange rail install (temp & perm)	lf	600	1.00
Third rail removed incl feeder rail	lf	19,000	1.00
Handling third rail incl feeder rail	lf	17,300	0.50
Track bumpers installed	ea	1	250.00
Permanent barricade	lf	70	10.00
Concrete header (5"x18")	lf	1,500	1.50
New intertrack fence install	lf	240	3.00
Intertrack fence relocated	lf	600	1.00
Intertrack fence removed	lf	850	1.00
Fiber conduit 3½" dia.	lf	220	2.00
Transite duct 4" dia.	lf	550	3.00
Precast conc duct, 4" dia	lf	850	3.00
Precast conc duct, 3½" dia	lf	300	3.00
Galv WI pipe 3" dia	lf	110	7.00
Galv WI pipe 3½" dia	lf	60	10.00
Demolish & remove existing passenger station	ls	1	2,500
Demolish & remove existing freight station	ls	1	1,250
Temporary station	ls	1	3,750
Station finish (ticket off, wait rm, el shaft, baggage rm, excl of str stl)	ls	1	43,750
Baggage elevator installed	ls	1	18,750
Perm elec light & facilities	ls	1	12,500
Temporary storehouse	ls	1	8,750
Temp low cinder platforms	sf	12,000	1.00
Temporary platform shelter	ls	1	1,250
Misc cinders—loose measure	cy	2,300	5.00
Track removed incl guard rail & crossing plank (labor only)	lf	19,100	1.50
Cast iron water pipe, 12" dia	lf	100	20.00
Relaying Cl water pipe, 12" dia	lf	500	10.50
Gate valve & box, 12" dia.	ea	1	350.00
Inspect by Dept. of WSG.&E of NYC	ls	1	8,000

Overpass, California

Spirited bidding characterized the award by the California Department of Public Works of a $508,613 bridge contract to Peterson and Baker, Los Angeles, the lowest of fourteen bidders. The 577'-10" overpass, 23' above the tracks of the Southern Pacific in Camarillo, California, consists of two roadways, 40' each, with one steel span and nine portland cement spans utilizing "T" beams. Construction will take 250 days. G. T. McCoy is the state highway engineer in charge.

Hourly wage rates are: structural iron worker, $2.70; apprentice engineer, $1.93; and laborer, $1.94.

Bidders include:

1C Peterson & Baker, Los Angeles, Calif. $508,613
2 Fredericksen & Kasler, Sacramento, Calif. 528,843
14 Clyde W. Wood & Sons, Inc., North Hollywood, California 693,277

Bids: 9-25-52 Items	Unit	Quantity	Unit Prices 1C	2
Clearing & grubbing	ls	1	$15,000	$9,300
Structure excavation	cy	305	3.00	3.40
Structure exc (bridge)	cy	1,720	2.00	1.55
Struct backfill (bridge)	cy	2,400	2.50	1.65
Ditch & channel exc	cy	350	2.00	1.00
Imported borrow	cy	43,500	0.55	0.47
Dev water supply & furn water equipment	ls	1	1,500	3,200
Applying water	mgal	2,200	2.00	1.33
PMS	t	12	15.00	10.00
Untreated Douglas fir	mfbm	5	300.00	263.00
Cl A PCC (structures)	cy	4,635	45.00	52.50
Concrete railing	lf	2,490	6.50	5.20
Structural steel	lb	242,000	0.12	0.122
Clean & paint str stl	ls	1	4,500	3,525
Misc iron & steel	lb	25,300	0.30	0.37
Deadman rods	lb	1,775	0.12	0.17
Furnish conc piling	lf	14,740	2.50	2.20
Driving conc piles	ea	468	48.00	38.00
Furnish steel piling	lf	6,740	2.70	3.37
Driving steel piles	ea	100	80.00	73.00
Steel pile splices	ea	110	20.00	24.00
Pneumatically applied mortar (ditch lining)	sf	3,600	0.70	0.52
Bar reinforcing stl	lb	906,000	0.098	0.105
Mesh reinforcement	sy	420	1.00	1.23
4" cmnt asbestos pipe	lf	100	2.00	1.00
Met plate guard railing	lf	102	5.00	3.50
Lighting equipment	ls	1	4,800	3,685

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
December 17 Rhode Island
STREETS AND ROADS
December 17 Rhode Island

▲† **Mass., Bedford**—ROADS—B.A. 12/17—U. S. Eng., 857 Commonwealth Ave., Boston, roads, grading, utilities, Bedford Research Center, ENG 19-016-53-26, $1,000,000-$3,000,000. Plans deposit $50. Extended date. Coolidge, Shepley, Bulfinch & Abbott, 1 Court St., Boston, archts. CD 11/19.

BIDS ASKED—BUILDINGS

▲ **Mass., New Bedford**—HOUSING—B.A. 12/29—New Bedford Housing Auth., Presidential Heights, housing, Proj. PHA 7-4, $2,250,000. Plans deposit $50 refundable. Frost & Kandzie, 60 State St., Boston, archts. CD 1/30/52.

▲ **Mass., Hingham**—SCHOOL—B.A. 1/15—Town, School Planning & Constr. Comn., c/o Supt. Schools, 229 North St., high school, Pleasant and Union Sts. $1,125,000. Plans deposit $50, refundable. Adden, Parker, Clinch & Crimp, 177 State St., Boston, archts. CD 1/22.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **United Engineers & Constructors, Inc.**, 1401 Arch St., Phila., Pa., CA. $10,000,000 hydraulic plant on Housatonic River, New Milford and Lake Zoar, CONNECTICUT. Connecticut Light & Power Co., 36 Pearl St., Hartford, Conn. Charles T. Main, Inc., 80 Federal St., Boston, Mass., engr. CD 1/4/50.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Wexler Constr. Co.**, 2 Elm Place, Brookline, Mass. LB $1,374,425. HOUSING, PHA 28-1, Pine Ridge Rd., FRAMINGHAM, MASS. Framingham Housing Auth., Arsenal Rd., Framingham, Mass. Bids Nov. 26. CD 11/11.

▲ **Charles McLaughlin**, 421 Highland Ave., West Somerville, Mass. Owner Builds. Est. $1,000,000. 145 RESIDENCES, LEXINGTON, MASS. CD 11/26.

Leeland Constr. Co., 59 Liberty Ave., Lexington, Mass. Owner Builds. $360,000. 30 RESIDENCES, LEXINGTON, MASS. CD 11/26.

† **Coleman Constr. Co., Inc.**, 49 Westminster St., Providence, R. I. LB. $366,546, enlarge operating room, facilities, mess hall and galley, Naval HOSPITAL Bldg. No. 5, Spec. 32434, NEWPORT, R. I. P. Wks. Office, 495 Summer St., Boston, Mass. Bids Nov. 25. CD 11/10.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
December 18 New York December 19 Pennsylvania
December 23 New Jersey

BIDS ASKED—BUILDINGS

▲ **Md., Baltimore**—SCHOOL—B.A. 12/17—City, Bureau Bldg. Constr., 410 Municipal Bldg., Frederick Road Elementary School, incl. library, gymnasium, cafeteria, $1,200,000. Plans deposit $50. Fenton & Lichtig, 2023 Maryland Ave., archts. Henry Hagel, 4307 Norwood Rd., struct. engr. Turpin, Wachter & Assoc., 1004 N. Charles St., mech. engrs. CD 7/24.

Md., Baltimore—HEALTH—B.A. 12/17—City, Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, brick, concrete, concrete block Eastern District Health bldg., Caroline and Monument Sts., $500,000. Plans deposit $100. C. Dana Loomis, 22 E. 25 St., archt. Egli & Gompf, Inc., 1019 N. Calvert St., mech. engr. Crout, Snyder & Crandall, Liberty Bldg., struct. engrs. CD 1/27/44.

▲ **Pa., Braddock**—HOUSING—B.A. 12/29—Allegheny County Housing Auth., County Office Bldg., Pittsburgh, 5 apartments, 7 story, bsmnt., 208 families, Proj. 6-11. $2,080,000. Sharove, Bowers & Barbalat, 417 Grant St., Pittsburgh, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW JERSEY**—State Hy. Dpt., State Hy. Office, Bldg., Trenton, N. J.

Poirier & McLane, 33 W. 42 St., New York, N. Y., LB, $1,749,089, 10 bridges and culverts, grading, paving Route 44, Relocation Sections 11 A, 14 A and 15 B from Delaware St. to Swedesboro Ave., West Deptford, East Greenwich and Greenwich Twps. and Borough of Paulsboro, F-122(11), Gloucester Co. Bids Dec. 2. CD 11/13.

Fulghum Contg. Corp., P.O. Box 1181, Harrisburg, Pa., CA Est. $500,000, constr. 9.4 mi. 10 in. gas transmission pipe line from existing gate house near Limestoneville to Danville regulator station, Montour Co. LIMESTONE-DANVILLE, PA. Scranton-Spring Brook Water Service Co., 30 N. Franklin St., Wilkes-Barre, Pa. Bids Oct. 27. CD 10/16.

▲† **MARYLAND and D. C., WASH.**—Bureau P. Rds., Dpt. Commerce, 1440 Columbia Pike, Arlington, Va.; **Charles H. Tompkins Co.**, 907 16 St. N.W., Wash., D. C. CA $1,459,244. bridge over Anacostia River, Baltimore-Washington Parkway, Proj. 1A6. Bids Nov. 6, awarded Nov. 26. CD 11/10, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Warshaw Constr. Co. & Warshaw Bros., Inc.**, 101 Park Ave., New York 17, N. Y. CA. $2,445,000, DOMESTIC RELATIONS COURT, BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Oct. 1. CD 9/24.

Euclid Contr. Corp., 101 Park Ave., New York 17, N. Y. LB $876,610, new DEPARTMENT REPAIR SHOPS, Kent Ave., BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Nov. 26. CD 10/30.

▲ **Milton Saper**, 105 Carleton Ave., Central Islip, N. Y. Owner Builds. $2,000,000. 250 HOUSES, 65-acre tract, CENTRAL ISLIP, N. Y.

▲ **Winster Co.**, c/o Ryder, Struppmann & Newmann, archts., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. $1,000,000. 83 HOUSES, 21-acre tract on Albemarle Ave., south of Pulaski Blvd., HUNTINGTON, N. Y.

▲ **Turner Constr. Co.**, 420 Lexington Ave., New York 17, N. Y. CA. $2,500,000. grocery WAREHOUSE, Grand Ave., MASPETH, N. Y. Bohack Realty Corp., Bohack Square, Metropolitan and Flushing Aves., Maspeth, N. Y. Skidmore-Owings & Merrill, 575 Madison Ave., New York 22, N. Y., archts.

▲ **1660 Broadway Corp.**, c/o Emery Roth & Sons, archts., 18 E. 48 St., New York 17, N. Y. Owner Builds. $7,000,000; 25 story OFFICE and STUDIO BLDG., PARKING GARAGE in block bounded by Broadway, 7 Ave., 51 and 52 Sts., NEW YORK, N. Y.

▲ **Gilbert Green**, c/o Percy Simon, archt., 362 Cedar Lane, Teaneck, N. J., Owner Builds. $4,000,000, 320 HOUSES on 75-acre tract, HAMILTON SQUARE (P.O. Trenton) N. J.

▲ **President Parks Homes**, c/o George W. Boylan, archt., 110 Magnolia St., Highland Park, N. J., Owner Builds, $1,500,000. 200 HOUSES on tract bounded by Harrison Pl., Washington, Wilson, Buchanan and Coolidge Aves., SAYREVILLE, N. J.

▲ **Ragnar Benson, Inc., & Joseph Muscarelle, Ltd.**, 329 Fourth Ave., Pittsburgh, 22, Pa., CA, Approx. $4,000,000. PARTS DEPOT, TETERBORO, N. J. Ford Motor Co., 3000 Schaefer Rd., Dearborn, Mich. The Austin Co., 600 S Ave., Cleveland, O., engr. and archt. Awarded Nov. 30. CD 5/27, under CA.

Wark & Co., 1920 Sansom St., Phila. 3, Pa., CA. $576,000. renovation of Building No. 6 at Norristown State HOSPITAL, NORRISTOWN, PA. State Dpt. Property & Supplies, 319 N. Front St., Harrisburg, Pa. Bids Oct. 29, awarded Dec. 2. CD 11/3, under LB.

Town Development, Inc., 202 Carlton House, Pittsburgh, Pa., CA. $300,000. 2 story, 100x150 ft., brick, block, steel MFG. BLDG., Center Ave., PITTSBURGH, PA. Haugh & Keenan Storage & Transfer Co.; 5879 Centre Ave., Pittsburgh, Pa. Nathan Cantor, 121 S. Negley St., Pittsburgh, Pa., archt.

▲ **Victor Haven, Inc.**, 711 S. Central Ave., Baltimore, Md. Owner Builds. $1,000,000. 110 HOUSES, Bayridge Rd., near ANNAPOLIS, MD. J. R. McCrone Jr., Town Worth Bldg., Annapolis, Md., engr.

▲ **Geo. Hyman Constr. Co.**, 1010 Vermont Ave. N.W., Wash., D. C. LB $3,208,638. concrete, brick, steel, concrete block STUDENT UNION BLDG. and concrete, steel, brick, block STUDENT ACTIVITIES BLDG., on campus, COLLEGE PARK, MD. State, University of Maryland, College Park, Md. CD 7/24 and 8/27/52.

Bd. Educ., 115 E. Church St., Frederick, Md. rejected bids Nov. 5. North Frederick Elementary School, FREDERICK, MD. Est. $500,000. Will readvertise. CD 10/29.

▲ **National Concrete & Fireproofing Co.**, Terminal Tower, Cleveland, O. CA $1,130,907. First stage 1 story, 300x750 ft., rein.-con., steel, concrete block Aluminum PLANT, HALETHORPE, MD. Kaiser Aluminum & Chemical Corp., 1924 Broadway, Oakland, Calif. Giffels & Vallet, 1000 Marquette Bldg., Detroit, Mich., engrs. and archts. Bids Nov. 5.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
December 16 North Carolina
STREETS AND ROADS
December 16 North Carolina December 17 Louisiana

† **La., Lake Charles**—P.O.L. FACILITIES—B.A. 12/23—U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., P.O.L facilities, Lake Charles Air Force Base, ENG 41-243-53-25. $375,000. CD 9/30, under LB.

BIDS ASKED—BUILDINGS

S. C., Westminister—HOUSING—B.A. 12/16—South Carolina Region Housing Auth., Laurens, housing, Projects SC 8-27-28-33-34-45 and 46, Iva, Westminister and Williamston. $850,000. CD 4/1.

Ga., Macon—SCHOOL—B.A. 12/18—Bibb Co. Bd. Educ., Court House, Pierce Avenue Elementary School. $350,000. N. J. Pascullis, Bankers Insurance Bldg., archt. CD 9/3.

Ala., Vincent—HOUSING—B.A. 12/19—Vincent Housing Auth., Vincent, housing units, $320,000. Plans deposit $50. Chas. H. McCauley, Jackson Bldg., Birmingham, archt. CD 10/29.

Ga., Marietta—SCHOOL—B.A. 12/22—Cobb Co. Bd. Educ., Marietta, Belmont Hills Elementary School. $325,000. Plans deposit $30. Bothwell & Nash, 208 Roswell St., archts.

Ga., Dublin—HOUSING—B.A. 12/23—Dublin Housing Auth., Dublin, housing, Projects GA 69-3 and GA 69-4. $753,000. Plans deposit $50. Extended date. CD 11/25.

Ga., Glennville—HOUSING—B.A. 12/23—Glennville Housing Auth., Glennville, housing, Projects GA 139-1 and GA 139-2, $450,000. Plans deposit $50. Extended date. CD 11/25.

Ala., Georgiana — HOUSING—B.A. 12/30—Georgiana Housing Auth., Georgiana, housing, Projects ALA 94-1 and ALA 94-2. $450,000. CD 4/1.

N. C., Madison—SCHOOL—B.A. 1/8—Madison School Dist., Madison, combination elementary-vocational school. $300,000. Plans deposit $50. Lindsey M. Gudger, 52 Carter St., Asheville, archt.

▲ **Ga., Atlanta**—HOUSING—B.A. 1/13—Atlanta Housing Auth., Trust Co. of Georgia Bldg., housing, Project GA 6-8, incl. 1,000 units. $8,000,000. CD 11/29/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **U. S. Eng.**, foot of Front St., Norfolk, Va. rejected bids Nov. 13, operation bldg., control tower for Readiness Hangar, ENG 44-110-53-5, Spec. 751, LANGLEY AIR FORCE BASE, VA. LB $333,383, U. S. Eng., foot of Front St., Norfolk, Va. CD 11/21, under LB.

▲† **McLean Contg. Co.**, 1301 Fidelity Bldg., Baltimore, Md., CA. $1,589,000. LST piers and ramps, Naval Amphibious Base, NOY 74904, Spec. 35811, LITTLE CREEK, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Nov. 25. CD 12/1, under LB.

SOUTH CAROLINA—State Hy. Dpt., Columbia,
J. W. Barnwell, Jr., 2206 Terrace Way, Columbia, S. C. CA $275,955. 652 ft. bridge over Broad River on Alt. U. S. Rte. 29 between Gaffney and Blacksburg, S. C. Docket 11.296 mi., Cherokee Co.;
Robert Lee, Inc., Manning, S. C. CA $73,314. 255 ft. bridge over Southern R. R. on Alt. U. S. Rte. 20 S. C. Docket 11.298 mi., Cherokee Co.; CA $81,561, underpass under the Clinchfield R. R. Alt. Rte. U. S. 29 S. C. Docket 42.356, Spartanburg Co.;
Pennell & Harley, Inc., Spartanburg, S. C. CA $79,933, 200 ft. bridge over Lawsons Fork Creek Road 44, S. C. Docket 42.373, Spartanburg Co. Grand total $510,763. Bids Nov. 18. CD 11/12.

▲ **SOUTH CAROLINA**—State Hy. Dpt., Columbia,
Fox Constr. Co., Inc., Lexington, S. C. CA $176,816. grading, paving 15.741 mi. Roads 33, 292, 257, 285, 288, 259, 287, 89, 316, 102, 254, 255, 68 and 197, Docket 2.332 Alt. No. 2, Aiken Co.;
Lexington Contg. Co., Lexington, S. C. CA $68,577. grading, paving 6.677 mi. Roads 107, 134, 266, and 24 S. C. Dockets 2.336, Aiken Co.; CA $132,107, grading, paving 12.083 mi. Roads 330, 59 and 283 S. C. Docket 40,385 Alt. No. 2, Richland Co.;
Robert Lee, Inc., Manning, S. C. CA $70,809. grading, paving 7.574 mi. Roads 25, 45, 30, 85, 27 and 26 S. C. Dockets 5.273 Alt. No. 2., Bamberg and Barnwell Counties.; CA $77,369, grading, paving 7.911 mi. Roads 61, 38, 152, 153, 154 and 173, S. C. Dockets 15.284, Colleton Co.;
Spotts & Co., Newberry, S. C. CA $93,631. grading, paving 8.601 mi. Roads 30, 104 and 130 S. C. Dockets 24.288 Alt. No. 2, Greenwood Co.; CA $131,034, grading, paving 12.902 mi. Roads S-24, S-16, S-63 and S-69 Dockets 44.270 Alt. No. 2, Union Co.; CA $139,457, grading, paving 11.075 mi. Roads 44 and 47 S. C. Docket 45.293 Alt. No. 2, Williamsburg Co.;
Highway Surfacing Co., Lancaster, S. C. CA $120,561, grading, paving 10.479 mi. Roads 145 and 56, S. C. Docket 29.295 Alt. 2 and 4, Lancaster Co.;
J. F. Cleckley & Co., Orangeburg, S. C. CA $119,148, grading, paving 12.703 mi. Roads S-191 and S-188, S. C. Docket 38.376, Orangeburg Co. Grand total $1,129,509. Bids Nov. 18. CD 11/12.

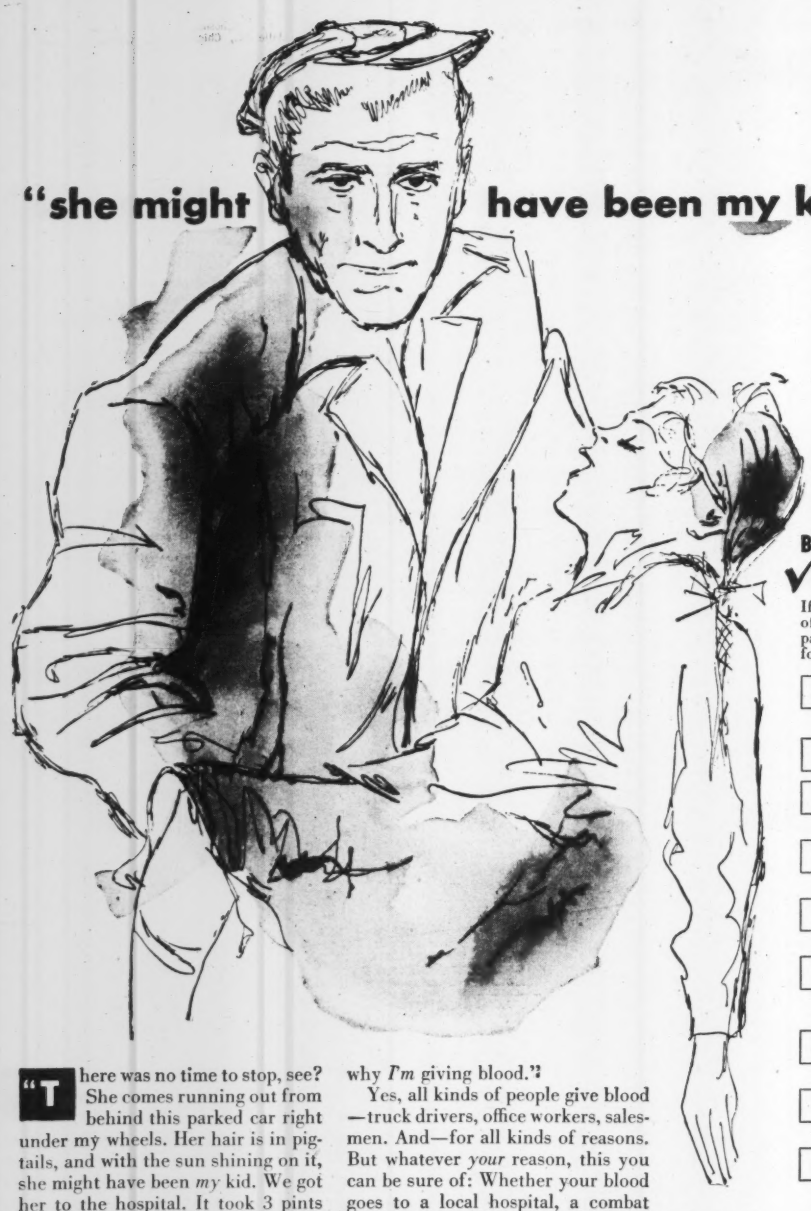
▲† **Wright Contg. Co.**, 504 25 Ave., Columbus, Ga., CA, $1,684,755, paving and utilities, Marine Corp Depot of Supplies, NOY 75263, ALBANY, GA. Dpt. Navy, Officer in Charge of Constr., Box 365 Naval Base, S. C. Bids Nov. 6, awarded Nov. 21. CD 11/12, under LB.

▲† **R. P. Farnsworth**, P.O. Box 850, New Orleans, La. CA, $5,056,664, two special A.M.C. warehouses, Robins Air Force Base, ENG 09-133-53-13, MACON, GA. U. S. Eng., 200 E. Julian St., Savannah, Ga. Bids Oct. 30. CD 11/5, under LB.

ALABAMA—State Hy. Dpt., Montgomery,
Pigford Brothers Constr. Co., Meridian, Miss., LB, $274,390. Proposal "B" bridges, on road between Bellamy and Moscow, F-287 (2) Sumter Co.;
Newell Brothers Constr. Co., Hope Hull, Ala., LB, $480,844. Proposal "B" bridges, on Evergreen-River

(Continued on page 103)

"she might have been my kid..."



"There was no time to stop, see? She comes running out from behind this parked car right under my wheels. Her hair is in pigtails, and with the sun shining on it, she might have been *my* kid. We got her to the hospital. It took 3 pints of blood to bring her around. All I have to do is remember the sound of those screaming tires—and I know why *I'm* giving blood."

Yes, all kinds of people give blood—truck drivers, office workers, salesmen. And—for all kinds of reasons. But whatever *your* reason, this you can be sure of: Whether your blood goes to a local hospital, a combat area or for Civil Defense needs—this priceless, painless gift will some day save an American life!

Business Executives!
✓Check These Questions!

If you can answer "yes" to most of them, you—and your company—are doing a needed job for the National Blood Program.

- ☐ Have you given your employees time off to make blood donations?
- ☐ Has your company given any recognition to donors?
- ☐ Do you have a Blood Donor Honor Roll in your company?
- ☐ Have you arranged to have a Bloodmobile make regular visits?
- ☐ Has your management endorsed the local Blood Donor Program?
- ☐ Have you informed your employees of your company's plan of co-operation?
- ☐ Was this information given through Plant Bulletin or House Magazine?
- ☐ Have you conducted a Donor Pledge Campaign in your company?
- ☐ Have you set up a list of volunteers so that efficient plans can be made for scheduling donors?

Remember, as long as a *single* pint of blood may mean the difference between life and death for *any* American . . . the need for blood is *urgent!*

Give Blood Now

CALL YOUR RED CROSS TODAY!

NATIONAL BLOOD PROGRAM

(Continued from page 101)

Falls Road F-348 (1), Conecuh and Covington Counties. Bids Nov. 21. CD 10/10, under Streets and Roads.

ALABAMA—State Hy. Dpt., Montgomery.

Grant Constr. Co., Box 1611, Montgomery, Ala., LB $318,980, bit. 4.915 mi. U.S. 29 between Auburn and Opelika, F-16 (5), State 99-D, Lee Co.;

Floyd S. Milford, 1412 S. 13 St., Birmingham, Ala., LB, $202,886, bit. 2.432 mi. Russellville-Phil Campbell Rd., F-135 (3), Franklin Co.;

W. A. McWaters, 2 Clayton St., Montgomery, Ala., LB, $151,132, bit. 0.738, U.S. 31 Garden Cit, (4), Cullman Co.;

Clyde O. Mitchell, 104 N. 44 St., Birmingham, Ala., LB, $676,918, Proposal "A" roadway, bit. 10.658 mi. on road from Guin toward Hamilton, F-173 (4), Marion Co.;

Southern Roadbuilders, Inc., Augusta, Ga., LB, $255,146 c. conc. 2.462 mi. U.S. 31 from Montgomery to Hunter Station, F.I. 194 (5), Montgomery Co.;

Pigford Brothers Constr. Co., Meridian, Miss., $354,015 bit. 7.594 mi. on road between Bellamy and Moscow, F-287 (2), Sumter Co.;

Newell Brothers Constr. Co., Hope Hull, Ala., LB, $480,844 bit. 14.221 mi. Evergreen-River Falls Road, F-348 (1), Conecuh and Covington Counties;

Bennett Constr. Co., Box 944, Montgomery, Ala., LB $81,948, bit. 5.333 mi. U.S. 31 four miles east of Evergreen to Owassa, SACP-694-A, Conecuh Co. Bids Nov. 21. CD 10/10.

▲ **P. A. Buchanan Contg. Co.**, 630 Woodland Ave. S.W., Birmingham, Ala., LB, $1,459,292, natural gas system extens., FORT PAYNE, ALA. City, Fort Payne, Ala. Bids Nov. 26. CD 11/19.

Koller Constr. Co., 612 Tradesman Bldg., Oklahoma City, Okla. CA $429,933, alterations, addns., sewerage sys., sewage treatment plant, CROWLEY, LA. City, Crowley, La. (Correction—contractor). CD 11/28 under CA.

▲ **T. L. James & Co.**, Box 531, Ruston, La. CA $2,157,449. concrete trestle sections for high level crossing of railroad over West Atchafalaya Floodway, KORTZ SPRINGS, LA. New Orleans, Texas & Mexico Ry., c/o F. S. Schwinn, asst. ch. engr., 204 Union Station, Houston, Tex. Bids Nov. 6, awarded Nov. 26. CD 11/19, under LB.

† **Sonnier Electric Co.**, Lake Charles, La. LB $385,820. electrical distr. sys., Lake Charles Air Force Base, Eng. 41-243-53-10, LAKE CHARLES, LA. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids Nov. 25. CD 9/23, under LB.

Farnsworth & Chambers Co., Inc., Box 232, New Orleans, La. LB $425,000. Req. SD 8424 constr. concrete slabs on wharf and levee addnl. fdns., piping lift bridges at Napoleon Ave. Wharf, NEW ORLEANS, LA. Port of New Orleans, No. 2 Canal St., New Orleans, La. Bids Nov. 25. CD 11/11.

▲† **T. L. James & Co.**, Ruston, La. LB $2,284,170. apron extensions and overlay paving, Barksdale Air Force Base, Inv. 53-30, SHREVEPORT, LA. U. S. Eng., 300 Broadway, Little Rock, Ark. Bids Nov. 26. CD 11/13.

BUILDINGS

LOW BIDS AND CONTRACTS

States Constr. Co., Inc., 3000 Warwick Ave., Newport News, Va., CA. Approx. $800,000. construct, manage, finance HOUSING units, Naval Mine Depot, YORKTOWN, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. CD 10/30, under LB.

J. N. Bryan & Son, 1305 Hillsboro St., Raleigh, N. C. CA $670,797, HIGH SCHOOL (5 bldgs.), 90,000 sq. ft., NEW BERN, N. C. City Schools, H. J. MacDonald, secy., New Bern, N. C. Bids Nov. 25. CD 10/30.

Jerry Liner, Lake Junaluska, N. C. LB. $405,634. Bethel Elementary SCHOOL, WAYNESVILLE, N. C. Haywood Co. Bd. Educ., Waynesville, N. C. Bids Nov. 25. CD 12/20/51.

Bailey-Brazell Constr. Co., P.O. Box 386, Greenville, S. C. CA. $467,150, HOUSING Projects, SC 16-1 and SC 16-2, GREER, S. C. Greer Housing Auth., Greer, S. C. Bids Nov. 28. CD 11/5.

Beers Constr. Co., 70 Ellis St. N.E., Atlanta, Ga. LB. $456,725, East Point Elementary SCHOOL;

Hardin & Traver, 2972 Habersham Way, Atlanta, Ga., LB. $432,000, Conley Hills, Elementary School, EAST POINT, ATLANTA, GA. Fulton Co. Bd. Educ., Court House, Atlanta, Ga. Bids Dec. 2. CD 11/5.

▲ **J. A. Jones Constr. Co.**, 133 Ellis St. N.E., Atlanta, Ga., CA. $1,000,000, paper products mfg. PLANT, ATLANTA, GA. Montag Bros. Inc., Highland Ave., Atlanta, Ga. Bids Nov. 13. CD 10/20.

Delta Constr. Co. & Paul H. Keasling, Waycross, Ga., LB. $694,549, two new SCHOOLS and three SCHOOL addns., HOMERVILLE, GA. Clinch Co. Bd. Educ., Homerville, Ga.

Field & Riley, Dupont Bldg., Miami, Fla. Owner Builds. $750,000. 75 RESIDENCES, FORT LAUDERDALE, FLA.

▲ **C & N Constr. Co.**, 300 N. 123 St., North Miami, Fla., Owner Builds. $1,500,000. 180 RESIDENCES, NORTH MIAMI, FLA.

Joseph Arra Constr. Co., Orlando, Fla. Owner Builds. $400,000. 50 RESIDENCES, ORLANDO, FLA.

▲ **M. T. Reed Co.Str. Co.**, P.O. Box 1066, Jackson, Miss. LB. $1,126,333. HOSPITAL, GULFPORT, MISS. City, Gulfport, Miss. Bids Nov. 25. CD 11/11.

Magnet Cove Barium Sulphate Co., National Bank of Commerce Bldg., New Orleans, La. Owner Builds. $423,500. PLANT expansion, imprvs., near NEW ORLEANS, LA.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES

December 17 Michigan December 23 Indiana

BIDS ASKED—BUILDINGS

O., Toledo—HIGH SCHOOL—B.A. 12/18—Bd. Educ., Southard Ave., 2-level bldg., 115x206 ft. Waite High School addn. $500,000. Plans deposit $25. Bellman, Gillett & Richards, 518 Jefferson St., archts. CD 12/11/52.

O., Cincinnati—OFFICE, etc.—B.A. 12/31—The Janszen Co., 62 Walnut St., 1 story, 189x376 ft. office and warehouse, tilt-up constr., off section road. $450,000. Oliver H. Bardon, 305 E. 6 St., archt. H. E. Froelicher, Trac. Bldg., engr.

Ill., Chicago—FACTORY—Bids Asked—Advance Transformer Co., 1122 W. Catalpa St., factory, Wellington and Campbell Sts. $600,000. CD 10/19/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Bryant & Detwiler Co.**, 2304 Penobscot Bldg., Detroit, Mich. CA $3,273,000. Contr. NE-3 pumping station, low lift structure 104 ft. outside diam., 35 ft. high rein.-con., steel walls, 20 ton bridge crane, elevator and hydraulic hoist, DETROIT, MICH. City, Oscar Wagner, pres. Bd. Water Comrs., 735 Randolph St., Detroit 26, Mich. Bids Oct. 23. CD 10/1.

▲ **Michigan Sewer Constr. Co.**, 21720 W. Eight Mile Rd., Detroit, Mich. CA $5,333,839. Northwest Interceptor, 18,900 ft. 10 ft. diam. sewer under streets and right-of-way Rouge River at Bayside Ave., DETROIT, MICH. City, Carl D. Warner, comr. Dpt. P. Wks., Guardian Bldg., Detroit, Mich. CD 10/8 under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Wilputte Coke Oven Div. of Allied Chemical & Dye Corp.**, 40 Rector St., New York, N. Y. CA. $10,000,000. COKE OVENS, 76 by-products coke ovens at Campbell Works, CAMPBELL, O. Youngstown Sheet & Tube Co., Stambaugh Bldg., Youngstown, O. CD 11/11.

Wood Fabricators, Inc., Bellefontaine, O., CA. $359,600, general constr. SCHOOL, Fairport Ave. in Auburndale-Stein District, DAYTON, O. Bd. Educ., 232 N. Main St., Dayton, O. Bids Nov. 12. CD 10/23.

† **Gustav Hirsch Organization, Inc.**, 1347 W. Fifth Ave., Columbus, O., CA. $516,500, electrical work at Pike County Atomic Energy Plant (subcontractor under Peter Kiewit Sons' Co., P.O. Box 268, Portsmouth, O.), for Atomic Energy Comn., 1901 Constitution Ave. N.W. Wash. 25, D. C. PIKETON and WAKEFIELD, O. CD 10/22, under CA.

▲ **Nelson Constr. Co.**, Huntington, W. Va. Owner Builds. $1,070,000. 100 pre-fabricated HOMES, 24-acre site known as Buena Vista, SOUTH POINT, O.

▲ **M. & E. Constr. Corp.**, c/o E. F. Hohlt, 115 E. Michigan St., Indianapolis, Ind., Owner Builds. $1,000,000 Park Terrace APARTMENTS, 10 three story apartment bldgs. incl. 110 units, 30 carports, 15 parking stalls, recreation areas, at Raymond, Pleasant Run and Ransdell, INDIANAPOLIS, IND. Lloyd W. Scholl, R.R. 2, Box 56, Indianapolis, Ind., archt. and engr.

Marten Blunck Real Estate & Building Co., 136 N. Delaware St., Indianapolis, Ind. Owner Builds. $650,000. 50 HOMES, Speedway City, INDIANAPOLIS, IND.

▲ **Kokomo Gas & Fuel Co.**, Kokomo, Ind. Own Forces, $1,000,000, expanding gas PLANT, new pipe lines, KOKOMO, IND.

F. A. Wilhelm, 3914 Prospect St., Indianapolis, Ind., CA. $400,000, 1 story, bsmnt., T-shaped, brick, stone, steel, concrete CHURCH, TELL CITY, IND. St. Paul's Roman Catholic Church, Tell City, Ind. Chas. M. Brown, 1131 N. Delaware St., Indianapolis, Ind., archt. Awarded Nov. 19.

▲ **Blaw Knox Constr. Co.**, 930 Duquesne Way, Pittsburgh, Pa., CA, $3,750,000 synthetic phenol PLANT addn., CHICAGO, ILL. Catalan Corp. of America, 1 Park Ave., New York, N. Y.

S. M. Wilson Constr. Co., 1616 Cleveland Ave., Granite City, Ill., LB. $601,395, general contract HOUSING, Project Ill.43-1, incl. 94 row-type dwelling units in 19 buildings, maintenance and management bldg., etc. on south side of HARRISBURG, ILL. Housing Auth. of Saline Co., First National Bank Bldg., Harrisburg, Ill. Bids Nov. 26. CD 11/10.

Kucharo & Assocs., Jewett Bldg., Des Moines, Ia., LB. $418,480, row houses, incl. 9 buildings, sewers and water lines, JOLIET, ILL. Joliet Housing Auth., 19 E. Jefferson St., Joliet, Ill. Lankton & Ziegele, 1100 Main St., Peoria, Ill., archts. CD 1/29, under LB.

Jenkins & Boller, 545 Benny St., Waukegan, Ill., CA. $300,000, general contract 1 story, 100x240 ft., concrete, steel, brick Aircraft Engine PLANT No. 8, Bldg. 35, KENOSHA, WIS. Nash Kelvinator Corp., 5626 25 Ave., Kenosha, Wis. Shaw, Metz & Dolio, 208 S. La Salle St., Chicago, Ill., archts.

Reniger Constr. Co., 127 N. Cedar St., Lansing, Mich. CA. Est. $350,000. 1 story, bsmnt., brick, stone CHURCH, incl. tower, LANSING, MICH. First Presbyterian Parish, Dr. J. Earl McIntyre, chn. Bd. Trustees, c/o O. J. Monson, archt., 409 Wilson Bldg., Lansing, Mich. CD 6/16/52.

▲ **Edward Rose** 14900 Linwood St., Detroit, Mich. Owner Builds. Est. $3,200,000. 3 single brick, frame HOUSES, Greenfield Rd. and Oak Park Blvd., OAK PARK, MICH. CD 8/26.

Edward Rose, 14900 Linwood St., Detroit, Mich. Owner Builds. Est. $530,000. 52 frame HOUSING units, Manitou and Crooks Rds. and 14 Mile Rd. section, ROYAL OAK, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES

December 18 Missouri December 19 Kansas

STREETS AND ROADS

December 17, 18, 19 Kansas December 18 Missouri

Mo., St. Louis—B.A. 12/30—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, Zone 3, alterations, repairs to primary sedimentation, and coagulation basins at Chain of Rocks plant of St. Louis Water Division, $780,000. CD 12/5/51.

BIDS ASKED—BUILDINGS

▲ † **Tex., Mineral Wells**—HOUSING—B.A. After 12/15—U. S. Eng., 100 W. Vickery Blvd., Fort Worth, construct, manage, and finance 450 duplexes and 50 single bldgs., frame, masonry trim housing, at Wolters Air Force Base. $4,000,000. Charles E. Armstrong, 351 Majestic Bldg., Fort Worth, archt. CD 6/19, under LB.

▲ **Mo., St. Louis**—SCHOOL—B.A. 12/18—Bd. Educ., V. Harry Rhodes, comr. School Bldgs., 911 Locust St., rein.-con., brick, steel, stone Sumner High School addn., 4248 West Cottage St. $1,575,000. CD 6/11/51.

Minn., Austin—SCHOOL—B.A. 12/19—Bd. Educ., S. L. Coumbe, clk., 1 story, bsmnt., 170x280 ft. vocational school, incl. shops, music dpt. $600,000. Plans deposit $15, Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, archts. CD 8/20.

Tex., Orange—HOUSING—B.A. 12/19—Housing Auth. of Orange Co., Orange, 118 no-farm housing units locations 20 units, at West Orange, 20 units, Bridge City and 34 units at Cove and 44 units at Vidor, Approx. $300,000. Plans deposit $50. Extended date. Matkin & Fitch, 4101 San Jacinto St., Houston, archts. CD 11/13.

▲ **Ark., Fort Smith**—PLANT—Bids Asked—Harding Glass Co., 2524 N. 11 St., expand existing plant, $2,000,000. Basham & Wheeler, Kenedy Bldg., archts. CD 4/9.

Tex., San Antonio—SYNAGOGUE—Bids Asked—Aqudas Achim Congregation, 108 E. Quincy St., synagogue, auditorium, library, $300,000, Malcolm Simons, Aztec Bldg., archts.; educational, $300,000, Cerf Ross Assoc., Auditorium Circle, archts. CD 9/17/51.

SOON LETS CONTRACT—BUILDINGS

Neb., Lincoln—OFFICE—Midwest Life Insurance Co., 1339 "O" St., soon lets contract office $325,000. Davis & Wilson, 225 Stuart Bldg., archts. CD 10/17.

Tex., Houston—WAREHOUSE—Finger Furniture Co., Gulf Freeway at Ennis and Velasco Sts., soon lets contract 2 story, 40,000 sq. ft. masonry warehouse, $375,000. Irving R. Klein & Assoc., 1317 Austin St., engrs. and archts. W. P. Moore, 2 Pinedale St., and J. Davis, 9240 Kenilworth St., engrs. CD 11/24.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

IOWA—State Hy. Comn., Ames,

Hargrave Constr. Co., 2424 Bever St. S.E., Cedar Rapids, Ia., LB, $329,273, b. conc. resurf. 21.654 mi. P-1048, Dallas Co.; LB, $285,185, b. conc. resurf. 21.237 mi. P-1043, Fremont and Mills Counties; LB, $143,085, b. conc. resurf. 10.611 mi. P-1047, Guthrie Co.; LB, $97,005, b. conc. resurf. 6.033 mi. P-1050, Jones Co.; LB, $303,002, b. conc. resurf. 22.304 mi. P-27, Page Co.;

Cameron Joyce & Co., Keokuk, Ia., LB, $99,007, research 9.714 mi. HR-17, Muscatine Co. Bids Dec. 2. CD 11/19.

V & M Contg. Co., Inc., 4030 Chouteau Ave., St. Louis 10, Mo. CA. $838,980. general work on rubbish incinerator bldg., etc., foot of Gasconade St., ST. LOUIS, MO. City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 and Market Sts., St. Louis 3, Mo. Bids Nov. 25 awarded Dec. 2. CD 12/1, under LB.

▲ **Union Pacific R.R. Co.**, W. C. Perkins, ch. engr., 1416 Dodge St., Omaha, Neb. Owner Builds. $4,000,000. expand yard facilities, KANSAS CITY, KAN.

† **Star Industries, Inc.**, 610 N. Main St., Wichita, Kan. LB $424,194. Group E bldgs., Wichita Air Force Base, Inv. 23-028-53-30, WICHITA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Nov. 21. CD 10/17.

† **Trinity Constr. Co.**, Box 3024, Houston, Tex., CA $742,000, (Garza-Little Elm Dam and Reservoir, Elm Fork Trinity River Line) embankment for relocation of Hy. S. Hy. 77 and M-K-T Railway line, at Lewisville,

Inv. No. CIVENG 41-443-53-12, TEXAS. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Nov. 20. CD 12/1.

▲ **TEXAS**—State Hy. Comn., State Highway Bldg., Austin.

Austin Bridge Co. & Austin Road Co., P.O. Box 1590, Dallas, Tex., CA. $1,061,833, grading, structures, storm sewers, c. conc. paving 2.201 mi. Hy. U. S. 75, Proj. U 515 (18), Dallas Co.;

Thomas & Ratliff, Rogers, Tex. and **Fred Hall & Son**, Valley Mills, Tex., CA. $501,901, flexible base, hot mix b. conc. pavement 0.97 mi. Hy. U. S. 81 and 190, Proj. FI 644 (10), Bell Co., Bids Oct. 22. CD 10/29, under LB.

Monroe J. Wolfe, 1023 Ridgewood Dr., New Orleans, La., LB $226,018. drainage, Proj. 48D02, 9.08 mi. near Spindletop Bayou; LB $168,742, Proj. 48D04, 13.67 mi. near Spindletop Bayou, by dragline or hydraulic dredge; Glaze & Vest, Box 1062, El Campo, Tex., LB $42,670, drainage, mostly rein.-con. weir, Proj. 48D03, near Spindletop Bayou, ANAHUAC, TEX. Trinity Bay Conservation Dist., Anahuac, Tex. Bids Nov. 25. CD 11/21.

† **Leslie Crockett Constr. Co., Box** 4036, Austin, Tex., LB $213,185, maintenance shop, structural steel frame; LB $105,202, concrete type parking area and roadway, 2 washing and lubrication bldgs.;

received no bids Nov. 25, asph. paving, crushed rock parking area, Inv. No. Eng 41-292-53-4, at Camp Mabry, AUSTIN, TEX. U. S. Govt., Office of U. S. Property & Disbursing Officer, Camp Mabry, Austin, Tex. Bids Nov. 25. CD 11/6.

† **Cage Bros.**, Rte. 10, Box 46, San Antonio, Tex., LB $218,000, pavement for firing-in-butt; LB $75,119, taxiway extens.; LB $104,285, runway extens., Inv. No. Eng 41-243-53-61, Laughlin Air Force Base, DEL RIO, TEX. U. S. Eng., Box 1229, Galveston, Tex. Bids Nov. 26. CD 11/19.

E. E. Farrow Co., 6109 Forest Park Rd., Dallas, Tex., LB $153,361, filter plant, 18 in. concrete cyld. pipe; LB $97,704, Ranger Line, Alt. Rte., 12 in. c.i. pipe; LB $102,280, Ranger Line, Alt. Rte. 14 in. concrete cyld. pipe, LB $204,690, Eastland Line-Base Rte., 14 in. concrete cyld. pipe;

McCorstain Constr. Co., 2201 W. Vickery St., Fort Worth, Tex., LB $396,392, est. $400,000. constr. earthen dam on Leon River, EASTLAND, TEX. Eastland Water Supply Dist., Ranger, Tex. Bids Nov. 25. CD 11/12.

Rudman Television Co., Broadway Ave., Galveston, Tex. Purchases, Force Account. $400,000. television station at Hitchcock, GALVESTON, TEX. CD 11/13.

Fort Bend Co., Richmond, Tex., Force Account. $200,000. some drainage, RICHMOND, TEX. S. A. Russell, Rosenberg, Tex., engr. CD 5/11/50.

Southwestern Bell Telephone Co., Auditorium Circle, San Antonio, Tex., Force Account. $200,000, laying some addnl. underground cables, SAN ANTONIO, TEX. CD 4/20/45.

Thompson Pipe & Steel Co., 3001 Larimer St., Denver, Colo. LB, $558,673, est. $717,000. steel pipe for new water transmission line, FT. COLLINS, COLO. City, City Hall, Ft. Collins, Colo. Burns & McDonnell Eng. Co., 95 and Troost Sts., Kansas City, Mo., engr. Bids Nov. 17.

BUILDINGS

LOW BIDS AND CONTRACTS

C. G. Haglin & Sons Co., 123 Bryant Ave. N., Minneapolis, Minn. CA $940,000. general contract remodel 5 story bldg. into department STORE, ROCHESTER, MINN. The Dayton Co., Seventh St. and Nicollet Ave., Minneapolis, Minn. CD 10/8.

Fagre Constr. Co., Esterville, Ia., LB, $399,248 general contract COURT HOUSE, ALGONA, IA. Kossuth Co., Court House, Algona, Ia. Bids Nov. 18. CD 10/17.

▲ **Abell Howe Co.**, 1026 3 Ave. S.E., Cedar Rapids, Ia., CA, $1,800,000, 90,000 sq. ft. ENGINEERING and RESEARCH BUILDINGS on 52-acre tract, CEDAR RAPIDS, IA. Collins Radio Co., 855 35 St. N.E., Cedar Rapids, Ia.

▲† **Maxey & Leftwich**, Box 108, Lubbock, Tex., LB, $4,198,000. AMMUNITION STORAGE facilities, Second Increment, Hastings Ammunition Depot, Spec. 35909, HASTINGS, NEB. P. Wks. Office, Bldg. 1-A, Ninth Naval Dist., Great Lakes, Ill. Bids Nov. 18. CD 10/22.

▲ **Chalmers & Borton**, Hutchinson, Kan. CA $2,000,000. GRAIN ELEVATOR, HUTCHINSON, KAN. Farmers Co-operative Commission Co., Hutchinson, Kan.

Hoke Constr. Co., Stillwater, Okla., LB $422,400. HIGH SCHOOL, GUYMON, OKLA. Guymon Public School Dist., Guymon, Okla. Bids Nov. 21. CD 11/10.

Marvin L. Cassman, 7014 Cornela Lane, Dallas, Tex. Own Forces. $85,000, WAREHOUSE, DALLAS, TEX.

Big Three Welding Equipment Co., 1717 Presidio St., Fort Worth, Tex. Purchases, Day Labor. $326,398, PLANT expansion, FORT WORTH, TEX. CD 11/19.

Owners, c/o Howard Patterson, Dan Waggoner Bldg., Fort Worth, Tex., Purchase and Hire. $365,000, constr. balance of Unit 1 SHOPPING CENTER, FORT WORTH, TEX. CD 12/18.

E. J. Burke & Sons, 1100 Goliad St., San Antonio, Tex. CA. $304,650, SHOPPING CENTER, SAN ANTONIO, TEX. Mrs. Joseph L. Gill, Majestic Bldg., San Antonio, Tex. CD 3/20.

▲ **Webb & Knapp Constr. Co.**, 270 Park Ave., New York 17, N. Y., CA, Approx. $15,000,000, 22 story OFFICE, Broadway from 17 to Lincoln Sts., DENVER, COLO. Ritz Carlton Realty Co., c/o contractor. Ieoh Ming Pei, c/o contractor, archt.

▲ **Grebe & Doremus Processing Co.**, 4601 Stanford St., Houston, Tex., CA $1,375,000, catalytic reforming REFINERY unit; CA $1,100,000, thermal cracking and polymerization REFINERY units, PREWITT, N. M. Malco Refineries, Inc., Roswell, N. M. CD 5/19.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Calif., San Rafael**—B.A. in February—Marin Municipal Water Dist., 874 Fourth St. Big Carson Dam on Lagunitas Creek. $2,000,000. (Interested contractors should visit site before rainy season). CD 11/15/49.

Calif., Compton—SCHOOL—B.A. 12/19—Compton Union High School Dist., 601 S. Acacia St., Compton High School addns., modernization $450,000. Plans deposit $50. Austin, Field & Fry, 2311 W. Third St., Los Angeles, archts. CD 10/29.

Wash., Aberdeen—HOUSING UNITS—B.A. 12/29—Housing Auth. of Grays Harbor Co., 539 Finch Bldg., 25 one and 2 story frame housing units, at Aberdeen and 25 at nearby Hoquiam, $800,000. Plans deposit $25. C. W. George, Aberdeen, and A. Riehl, 1107 Franklin Ave. Seattle, archts. CD 10/23/51.

Wash., Kelso—HOUSING—B.A. 12/30—Housing Auth. of City of Kelso, Terminal Bldg., 50-unit duplex housing, $400,000. Plans deposit $25. A. Riehl,, 1107 Franklin Ave., Seattle, archt. CD 4/24.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **City**, c/o A. W. Wahlquist, recdr., City Hall, Murray, Utah, rejected bids Nov. 17, sanitary sewer of 167550 lin. ft. main line, 7 outfall sewer and 37,000 lin. ft. service lines, MURRAY, UTAH. LB. $1,039,677, est. $850,000. CD 11/17.

UTAH—State Road Comn., State Capital, Salt Lake City.

Olof Nelson, Logan, Utah, CA. $345,214, est. $357,072, 3 in. plant mixed bit. road, State Rte. No. 68 between 3500 and 7800 South Sts., FASP No. S-102 (5), Salt Lake Co. Bids Nov. 25. CD 11/14.

† **ARIZONA**—Bureau P. Rds., Dpt. Commerce, Phoenix, **Phoenix-Tempe Stone Co.**, Box 1670, Tempe, Ariz., LB, $483,083, 5½ mi. over new alignment, Payson-Phoenix Highway, Gila Co.

† **Arizona Sand & Rock Co.**, Box 596, Phoenix, Ariz., LB, $384,919., runway extension, taxiway, strengthening motor pool, ENG 04-353-53-57, WILLIAMS AIR FORCE BASE, CHANDLER, ARIZ. U. S. Eng., 751 S. Figueroa St. Los Angeles, Calif. Bids Nov. 28. CD 11/28, under LB.

▲† **English Electric Co.**, Stafford, England, LB, $1,831,880, ten 103,300 kva. transformers for Chief Joseph Dam, Brewster, Inv. 53-25, WASHINGTON. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Dec. 1. CD 10/3.

▲† **Baldwin-Lima-Hamilton Corp.**, 940 Simpson St., Eddystone 42, Pa., LB $20,025,770, 14 turbines for Dalles Dam, Wasco Co., Eng 35-026-53-53, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Dec. 2. CD 10/1.

▲† **Engineers Ltd. Pipeline Co.**, 12714 Inglewood Ave., Hawthorne, Calif., CA. $1,169,752, sewer, gas and water systems at Edwards Air Force Base, ENG 04-353-53-49, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Nov. 25, awarded Nov. 28. CD 11/7.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Max J. Kuney Co.**, N120 Ralph St., Spokane, 24, Wash. LB. $1,968,799, est. $1,929,081, two central HEATING PLANTS with distr. systems in permanent troop facilities area, Inv. 53-19, FORT LEWIS, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Dec. 1.

† **L. H. Hoffman**, 715 S.W. Columbia St., Portland, Ore., LB. $355,000, COMPLETING MECHANICAL DEVELOPMENT BLDG. in lab. area inside Hanford Works, RICHLAND, WASH. Atomic Energy Comn., Richland, Wash. Bids Nov. 25. CD 10/24.

Steed Bros., Box 350, Alhambra, Calif., LB. $423,500, 3 story, rein.-con. HOSPITAL addn., HAWTHORNE, CALIF. Hawthorne Community Hospital, 711 Grevillea Ave., Hawthorne, Calif. Bids Nov. 25. CD 10/22.

The Atherton Co., 13421 San Antonio Dr., Norwalk, Calif., CA. $630,600, 78 frame, stucco DWELLINGS, Fairbrook, Los Santos, Lees, Stearns Sts. and Studebaker Rd., LAKEWOOD, CALIF. Sparrow Homes, Robbin Homes, Quail Homes, Petril Homes, Inc., 12421 San Antonio Dr., Norwalk, Calif.

▲ **Robert E. Mckee, Inc.**, 4700 San Fernando Rd., Los Angeles, Calif., LB. $3,988,200, 9 story, rein.-con. health and receiving HOSPITAL, LOS ANGELES, CALIF. City, City Hall, Los Angeles, Calif. Bids Nov. 26. CD 10/22.

W. R. Kalshed, 201 San Jose Ave., San Jose, Calif., CA. $739,500, Los Gatos Union High SCHOOL, LOS GATOS, CALIF. Los Gatos Union High School Dist., 130 Magneson Loop, Los Gatos, Calif. Bids Nov. 20, awarded Nov. 24. CD 10/31.

▲ **Geo. A. Renner Co.**, 8514 Holly St., Oakland, Calif., CA, wharf;

Jack E. Hudson Co., Oakland, Calif., CA, storage tanks, for OIL REFINERY and distr. PLANT, FINOLE, CALIF. Tidewater Terminals Inc., Pinole, Calif. Total for both projects $3,000,000. Awarded Nov. 25. CD 11/6, under CA.

Allan Associates, 618 S. Orange Dr., Los Angeles, Calif. Owner Builds. $434,600, 51 frame, stucco HOUSES, Cary Lane and Sharon Dr., POMONA, CALIF.

M. Miller, 274 S. Thomas St., Pomona, Calif. Owner Builds. $434,600, 58 frame, stucco HOUSES, San Felepe, La Verde Sts. and Luna Way, POMONA, CALIF. J. Dewey Harnish, 222 E. "B" St., Ontario, Calif., archt.

▲† **Ford J. Twaits Co., Morrison-Knudsen Co., & Macco Corp.**, 449 S. Beaudry St., Los Angeles, Calif., CA. $1,177,263, TRAINING FACILITIES, Marine Corps Artillery, NOY 74048, Spec. 35083, TWENTYNINE PALMS, CALIF. Dpt. Navy, San Diego, Calif. Bids Oct. 8. CD 10/15.

Allied Contractors, Inc., 945 N. La Cienega St., Los Angeles, Calif., CA. $270,800. 29 single and 9 multiple DWELLINGS on Havenwood, Lock Lomond, Lindsey and Catherine Sts., WHITTIER, CALIF. Walk Corp., 945 N. La Cienega St., Los Angeles, Calif.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Ont., Forest Hills—SCHOOL—B.A. 12/19—Forest Hill Village Bd. Educ., Forest Hill, addns. to North Preparatory School, South Preparatory School West Preparatory School, West Hill Dr., $564,000. Plans deposit $50. Page & Steel, 72 St. Clair Ave. W., Toronto, archts. CD 6/20.

Ont., Port Arthur—ORE DOCK—B.A. 1/12—Canadian National Rys. Western Region, J. L. Charles, ch. engr., Winnipeg, Man., superstructure of 600 ft. extens. to existing pocket ore dock. $700,000. Plans deposit $300.

BIDS ASKED—BUILDINGS

▲ **Ont., Toronto**—HOMES—Bids Asked—Don Mills Development Co., c/o John Layng, archt., 170 Bloor St. W., 1800-2000 home development, incl. sewage disposal plant. $20,000,000. CD 7/2.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Stanton Iron Works, London, England, CA. $307,770 c.i. water pipe, EDMONTON, ALTA. Municipality, Edmonton, Alta. J. D. A. MacDonald, City Hall, Edmonton, Alta., city engr. CD 11/27/51.

Marwell Constr. Co. Ltd., 1500 W. Georgia St., Vancouver B. C., LB $250,000 steam distr. system Stage I, UPPER WHITEHORSE, YUKON TERRITORY, Defence Constr. Ltd., Kensington Bldg., Winnipeg, Man. Bids Nov. 4. CD 10/16.

BUILDINGS

LOW BIDS AND CONTRACTS

J. E. Copeland Co. Ltd., Montreal Rd., Eastview, Ont., CA, $300,000, Assumption SCHOOL addn. and Ducharme SCHOOL addn., EASTVIEW, ONT. Eastview Separate School Comn., Eastview, Ont. Bids Nov. 24. CD 11/10.

▲**Newman Brothers Ltd.**, 4A Clark St., St. Catherines, Ont., CA. Approx. $3,500,000, 1 story, 480x720 ft., concrete, steel, frame, brick FACTORY, addn., ST. CATHERINES, ONT. McKinnon Industries Ltd., Ontario St., St. Catherine, Ont. Bids Nov. 26. CD 11/6.

▲ **Chemical Construction Inter-American Ltd.**, 74 Wellington St. W., Toronto, Ont., CA. $4,000,000, PLANT, WELLAND, ONT. Norando Mines Ltd., 44 King St. W., Toronto, Ont.

Ain & Zakuta Ltd., 6910 Wiseman Ave., Outremont, Que., CA, $500,000, rein.-con., brick APARTMENT, West Sherbrooke St., MONTREAL, QUE. H. Grover, 4151 W. Sherbrooke St., Montreal, Que. Greenspoon & Dunne, 4151 W. Sherbrooke St., Montreal, Que., archts.

Wilfrid Lalonde Reg'd, Rigaud, Que., CA. $345,000. concrete, steel, brick SCHOOL, OUTREMONT, QUE. Reverend Clerics of St. Viateur, Outremont, Que. CD 7/3/51.

Alphonse Couture Reg'd, Rosemere, Que., CA, $400,000, arts and trade SCHOOL, ST. JEROME, QUE. Province of Quebec, Dpt. Educ., Quebec City, Que.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska, Kodiak**—BARRACKS, etc.—B.A. 1/15—Dpt. Navy, Bureau Yards & Docks, Dist. P. Wks. Office, 17th Naval Dist., Kodiak, marine barracks, garage, resealing runways and taxiways, 31618B; aircraft control tower, crashboat facilities, utilties sys. extens., 31620B. CD 9/11/51.

AMERICANS ABROAD

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Bechtel Affiliates**, c/o Bechtel Corp., 570 Lexington Ave., New York 17, N. Y. CA. Approx. $150,000,000, OIL REFINERY, HOUSING and utilities for city of 15,000 people, piers, docks, dredging, etc., ADEN, ADENPROTECTORATE. Anglo Iranian Oil Co., Britannic House, Finsbury Circus, London, England.

(Propasal Advertisements see p. 110 to 112)

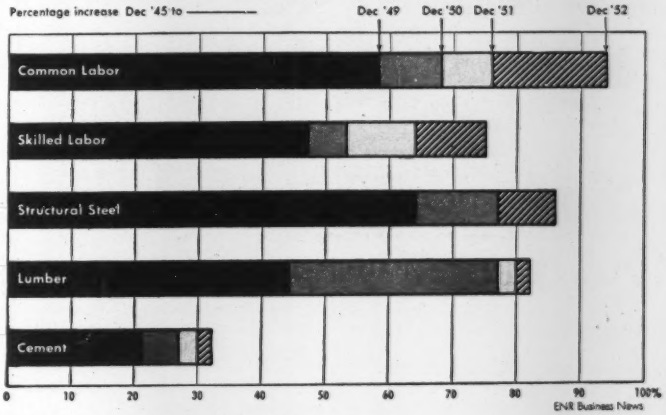
Construction costs up 7.3% in 1952

For the construction industry, 1952 has been a year of rising costs. ENGINEERING NEWS-RECORD, in a special study, this week added up the totals to show how much the increase has been.

One fact stood out: Construction costs climbed faster this year than in 1951. ENGINEERING NEWS-RECORD's construction cost index for December stands at 587.49 (based on 1913 equals 100). This represented a 7.3% rise in the index this year as compared with a 3.3% increase in 1951.

ENR's building cost index, which reached 425.26 this month (1913 equals 100) went up 4.8% during the year. Last year, it increased 3.7% in twelve months.

There was at least one comforting factor in the 1952 picture. While construction costs increased more in 1952 than 1951, the increase was smaller than in any of the postwar years (1946-50), except 1949 when costs held more or less constant.



Higher wage rates and steel prices pushed costs up.

• **Wage hikes**—ENR's average wage rate for common labor on heavy construction and building in 20 cities climbed by a record 17 cents per hour in 1952. Last year, this average rate went up only seven cents per hour.

Skilled wages, average for bricklayers, carpenters and structural ironworkers, went up 19 cents per hour in 1952. This was more than the 16-cent average raise last year and represented the greatest increase in any one year since 1948. The increases include fringe benefits, such as pension, welfare, health insurance and vacation funds.

An unusual feature of the pattern of wage increases this year was that common labor rates came close to showing the same average increase as skilled wages.

In 1951, common labor rates, on the average, increased less than half as much as skilled rates.

• **Steel**—On the materials side, steel played the dominant role in pushing costs higher this year.

ENR's mill price of structural steel shapes went up 5.5% in August, for the first steel price rise since December 1950.

Lumber and cement prices, which were up slightly, also contributed to higher construction costs this year.

Lumber prices (ENR's average fir and pine 2x4's) averaged 1.2% higher in December 1952, than in December of last year. The price of cement rose 1.6% over the same 12-month period.

Most of the increase in cement was due to the boost in railroad freight rates, effective in May.

San Diego analyzes bids for second aqueduct barrel

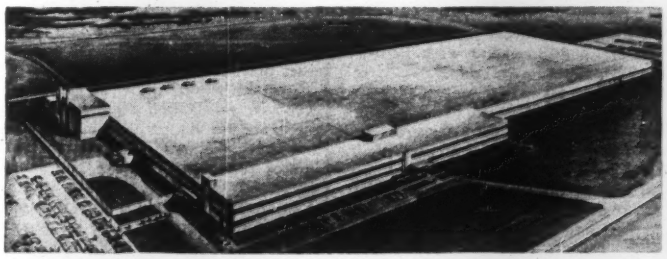
After analyzing bids received late in November, officials of the San Diego Water Authority last week concluded that the southern half of the second barrel of the San Diego aqueduct can be built within the congressional authorization of $18 million for the total job.

Low bid, as announced by the 11th Naval District Public Works Office in San Diego, was $6.8 million, submitted by S. A. Healy, of Chicago. Eight other bids ranged up to a high of $8.3 million. All bids are being studied in Washington by the Bureau of Reclamation, which will make the award. Estimate on the southern half of the 35-mile aqueduct was $6.9 million.

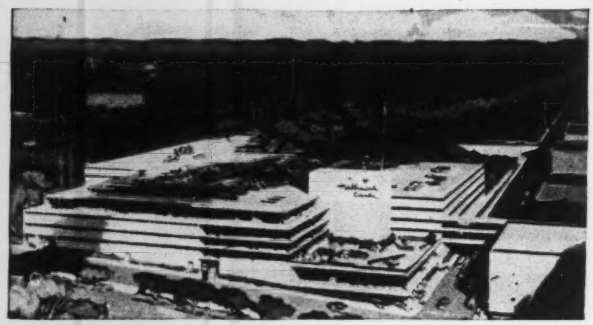
Work is under way on the northern portion of the Aqueduct, which connects with the Los Angeles metropolitan water district's line to the Colorado River.

If the Healy bid is accepted, the total amount under contract on the aqueduct will be $15.3-million, leaving $2.7-million available for engineering work, overhead and contingencies.

The San Diego Water Authority, which will operate the second barrel, believe this $2.7-million will provide an ample margin.



CONSTRUCTION WILL START March 1 on a $10-million meter plant for Westinghouse Electric Corp. in Raleigh, N. C. Virginia Engineering Co., of Newport News, is general contractor for the project which will include a one-story plant, 1,020 x 420 ft; a two-story office building, 460 x 80 ft. There will also be a connecting one and two-story wing, 180 x 80 ft.



Plant will have 7 "ground" floors

Early next year Hall Brothers, Inc., manufacturers of Hallmark greeting cards, will start construction of a $6-million plant in Kansas City, Mo.

To include 777,000 sq ft, it will adjoin the present Hall Brothers plant of 300,000 sq ft, and will be the largest in floor area—25 acres—in the general Kansas City business district.

To be erected on a hill, the plant will have seven floors of production, office and design department space, and a roof-top parking area. Each floor will have direct access from a "ground" level. A two-story bridge across a busy thoroughfare will tie in the new plant with the existing facility.

Welton Becket & Associates of Los Angeles, the architects, have established a branch in Kansas City to handle the new manufacturing plant project.

The 7½-acre site of the new Hall Brothers building had been considered wasteland; shrubs and underbrush cover the hillside area, and heretofore had discouraged development.

The building will be of concrete and glass. The roof at the seventh floor level will be for parking—now figured at 450 cars—with entry through a central tower which will house elevator equipment.

Two big floors—the sixth and seventh—will provide 188,950 sq ft each, with direct access for trucks. They will be warehouse areas.

Manufacturing processes will be on a gravity flow basis, with raw materials starting down from the top through chutes and conveyors.

PAD spurs $395 million in pipelines

The Petroleum Administration for Defense last week allocated 222,896 tons of line pipe for the first quarter of 1953 to speed construction of 14 crude-oil and petroleum-products pipelines costing $395 million. Projects receiving priorities for the first time:

- A $11.5-million, 243-mi line to be built by Standard Oil (Ind.) from Whiting, Ind., to River Rouge, Mich.
- A $3.2-million, 55-mi crude-oil line for Gulf Refining Co. from Bay Marchand to Plaquemines, La.
- A $2.3-million, 103-mi line to be built by Cal-Ore Pipeline Co. from Crescent City, Calif., to Medford, Ore.
- A $2-million, 66-mi products line to be built by Phillips Pipeline Co. from Brookshire to Sweeny, Tex.
- A $1.9-million, 45 mi crude-oil line to be built by Phillips Pipeline Co. from Missouri City to Sweeny, Tex.

PAD also allocated 45,000 tons of pipe to the Lakehead Pipeline Co. to begin construction of a 625-mi line from Superior, Wis., to Sarnia, Ont.

Allocations to smaller projects total 11,457 tons of line pipe for the first quarter of 1953, bringing first quarter allocations to 234,353 tons.

• **More ahead**—Other pipeline projects were pushed ahead last week for two new construction projects.

Continental Pipeline Co. announced plans to build a 600-mi 8-in. line from Billings, Mont., across the Continental Divide to Spokane, Wash.

Texas Eastern Transmission Corp. asked the Federal Power Commission to approve a $23.5-million, 315-mi natural gas pipeline from Providence City, Tex., to Castor, La. As part of the plant, Wilcox Trand Gathering System, Inc. would build an $11-million network including 160-mi of pipeline to collect gas from the fields in the Providence City area.

N. Y. State regulates natural gas pipeliners

Last week New York State's Public Service Commission had, in the hands of its printer, rules and regulations for gas pipeline constructors operating within the state. These strict rules and regulations, mostly aimed at safety and construction operations, have already been ordered adopted.

The Public Service Commission states definitely that the Federal Power Commission has exclusive regulatory jurisdiction over interstate gas pipeline operations. But FPC has set no standards for safety, and pipeliners have dealt arbitrarily with citizens of New York State, says the commission. It recommends legislation be approved by the state to find the pipeliners liable for damage where it is claimed.

Studies of construction methods began with institution of proceedings last Feb. 13, with 42 gas corporations and two municipalities named as respondents. Eight of the corporations are outfits engaged in transmission line construction.

Among the two dozen rules promulgated are these:

The American Standards Assn.'s code must be followed. PSC must approve lines to carry pressures of 250 psig or more within 100 ft of any building for human habitation. Welds must be in accord with American Petroleum Institute and American Gas Assn codes. Radiographic inspection of 20% of all welds, and 10% of all welds within cities must be made on all pipes over 5 miles long and 16 in. in diameter.

Under highways and railroads, all pipe over 6 in. and under pressure of 50 psig or more must be encased according to ASA and API standards. Any line with pressure 125 psig or more must be encased if it is within 25 ft of a hard surfaced roadway, unless the PSC rules otherwise. Within railway rights-of-way, ASA codes for cities prevail.

Shut-off valves must be installed every 16 mi in the country (where there are no houses within 300 ft) and every eight mi where there are houses closer than that. No automatic valves are to be used unless it is proved they provide added safety. Regulator stations must be equipped with relief valves to protect against build-up of excessive pressures in the event of failure of the station.

Minimum cover over pipe is to be 24 in. Where this is impracticable the pipe must be cased or shielded

in an approved manner. Where possible, 36-in. cover is desirable within towns and cities. No gas pipeline is to be laid within 12 in. of any other subsurface structure.

The Public Service Commission must hear and approve any reasons for installing lines of 125 psig pressure, or greater, without careful corrosion control measures.

All lines under at least 50 psig within cities or within 300 ft of habitable buildings must test to 150% of maximum design pressure by air or water. Other lines must test to the design pressure plus 50 psig. PSC must be notified of all tests two days in advance; also, municipal officials in the area of tests must likewise be notified.

Air shall be purged from the pipe within settled areas by water or some inert gas which is safe from danger of explosion.

No compressor stations are to be built in residential areas; elsewhere they are to be 500 ft from the nearest building, 250 ft from the nearest building for stations greater than 1,000 hp. Accidents causing injury or death must be reported immediately to PSC.

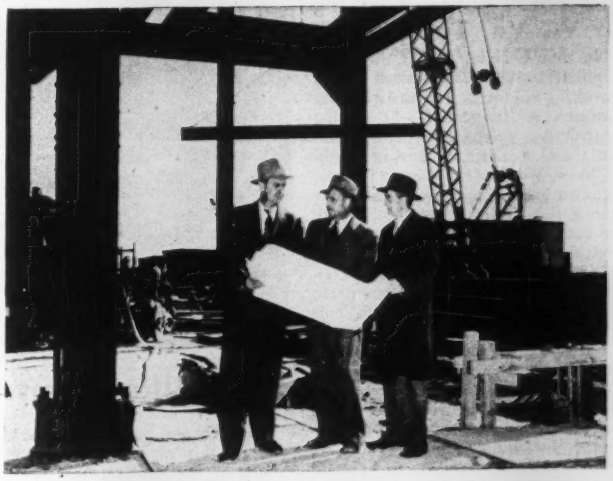
At least 30 days before construction or major reconstruction begins on a line intended to be subject to greater than 125 psig, the report on specifications of the pipeline must be received by PSC. Thereafter progress reports must be made.

Pipeline outfits included as respondents in this proceeding of the New York State Public Service Commission include: New York State Natural Gas Corp., Texas Eastern Transmission Corp., Algonquin Gas Transmission Co., The Sylvania Corp., Tennessee Gas Transmission Co., Home Gas Co., Southern Tier Gas Corp., and Trans-Continental Gas Pipeline Corp.

School program launched

Georgia is entering into the largest school building program in the state's history. A total of 83 projects has been approved at an estimated cost of $105 million. The state will pay slightly more than $80 million; local communities will pay the remainder.

Approved projects will be financed with funds from the sale of revenue certificates. Recently, a $32-million issue was sold. As other projects reach the construction stage, additional bonds will be sold.



Caterpillar builds $3-million plant

Steel erection is under way on Caterpillar Tractor Co.'s $3-million plant at York, Pa. Next year, the plant will start producing parts from 10-machine lines and one assembly line. Consolidated Engineering Co. holds the general contract; steel is being erected by Bethlehem Steel Co. Viewing the construction above (left to right): G. C. Schweser, supervising engineer for Caterpillar; J. Edward Pritchett, Consolidated's general superintendent; and K. C. Spayde, Baltimore sales manager for Bethlehem. Included on the 200-acre site will be a manufacturing plant of approximately 370,000 sq ft, heating plant and office building. In addition, the company recently leased a 300,000-sq ft warehouse and parts processing plant adjacent to the manufacturing site.

Washington, Oregon plan new bridge

Washington and Oregon Highway Commissions have agreed to ask their state legislatures to authorize $11.2 million worth of bonds to finance a second interstate bridge across the Columbia River between Vancouver, Wash., and Portland, Ore.

Tolls will be collected on the new bridge and will be resumed on the existing bridge, which is located 83 ft downstream, if the recommendations of the state highway commissions are accepted.

The present bridge, built by Clark County, Wash., and Multnomah County, Ore., as a toll structure in 1915, and toll-free since 1929, is becoming inadequate for present-day traffic. It is estimated that daily traffic over this bridge numbers about 38,000 vehicles.

Commission engineers hope to start construction by 1957, at the latest. At that time, a freeway and interchange project now under construction at the Vancouver approach to the present bridge, will be in full operation (ENR Nov. 20, p. 48).

The new structure, 40 or 42 ft wide and more than one-half mile long, would consist of 12 fixed steel spans and one 250-ft steel lift span on concrete piers. In addition it would include two concrete T-beam approaches.

The bridge would carry three lanes of traffic in each direction.

The engineers have estimated that tolls of about 15 cents a car and 50 cents a truck could retire the necessary bonds in a period of from seven to nine years.

R. H. Baldock, Oregon highway engineer, reported the proposed site will permit traffic interlocking with the new Vancouver Freeway and Interchange at a cost of about $500,000. Approaches on the Oregon side would cost as much as $2.5 million. Oregon engineers will draw up the plans for the new crossing.

The present bridge is 38 ft wide, 3,351 ft long and includes one girder span and 13 steel through-trusses, including a vertical lift.

Contracts coming fast for W. Va. Turnpike

No time is being lost by the West Virginia Turnpike Commission and its consulting engineers, Howard Needles, Tammen & Bergendoff, in getting construction operations rolling again after the U. S. District Court of Southern West Virginia ruled in its favor in a controversy with the state attorney general (ENR Nov. 29, p. 26). Work had been stopped for a period of three months.

Bids will be received on three contracts Dec. 18 while three more are being currently advertised, with bids called for Jan. 6.

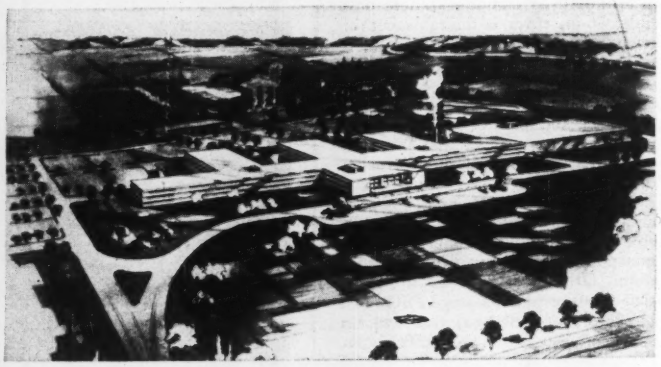
Full speed ahead began immediately after the court ruling was received on Nov. 17. All staff members who had been taken from the payroll to reduce expenses have been rehired. At a meeting of the commission on Nov. 20, formal approval was given to line and grade for all but 12 of the 88 miles of the road. On the following day 9 more miles were approved so that at present the route of only three miles is in question.

At the same meeting the three contracts, for which bids will be received next week, were advertised. These are Contract 10, drainage and grading of 3 miles involving 1,600,000 cu yd of excavation, which had been scheduled originally for bids Sept. 30 and then was delayed by the legal controversy; Contract 11, the substructure (2 abutments and 5 piers) for the continuous-deck truss bridge over the Bluestone River whose superstructure is now being fabricated under Contract 6 by the American Bridge Co.; and Contract 14, excavation and lining of a half-mile long tunnel. Awards for these contracts will be made at a meeting scheduled for Dec. 19.

The three additional contracts being offered for bids this week are as follows:

Contract 9, drainage and grading of 5 miles, including 800,000 cu yd of excavation and the construction of the substructures of five small bridges; Contract 12, substructure of Four Mile Fork Bridge, a duplicate of the Bluestone River Bridge covered by Contract 11; and Contract 15A, furnishing of tunnel ventilating equipment.

Contractors are showing a great interest in the turnpike work as evidenced by the fact that 60 sets of plans have been purchased for the tunnel of Contract 14, and that as long ago as September 35 sets went out for the 3 miles of grading under provisions of Contract 10.



$11-million control center planned

Construction preparations are being readied this week for a new control center for the Strategic Air Command.

Informally referred to as "the Pentagon of the West" the building will bring under one roof headquarters of the Air Force's globe-girdling strategic arm. The center will be constructed at Offutt Air Base, ten miles south of Omaha.

Estimated cost of the structure was not disclosed. When the late Senator Kenneth Wherry sought money for the building he asked for $6.8 million. That figure, since out-dated, did not include money for an adjoining building for which separate financing arrangements have been made which will be tied into the main structure. Best obtainable estimate of total cost: $11 million.

Based on the assumption that the Air Force shortly will give the official go-ahead, the construction timetable was outlined by Col. Hubert S. Miller, Omaha District Chief of Army Engineers. Col. Miller's office will have charge of the construction of the control center.

Plans and specs are nearing completion. Bids probably will be invited about Dec. 23. Based on that date they would be opened around Feb. 11. Completion will require two years' time.

To be located on a 35-acre plot at the south end of the base, the control center will consist of two connected units providing 530,000 sq ft of space. It will be of reinforced concrete with brick facing.

The main and larger portion is to be the administrative section. It will be three stories high with a basement and sub-basement.

This section will be about 600 ft long with three wings at the rear. The smaller building, to be two stories tall, will add another 260 ft.

This structure was described by SAC as the reconnaissance technical building. The building was designed by Leo A. Daly Co.

Expediter loses suit to collect $10,000 fee

An "expediter" who sought to collect a $10,000 fee from the Gaasland Construction Co. of Bellingham, Wash., for allegedly obtaining a $500,000 government construction contract in Alaska, has lost a suit against the company before the Washington State Supreme Court at Olympia.

While engaged in a $4-million federal contract in 1950, Roy Gaasland decided the project would be facilitated if an 18-mi road could be constructed from Naknek to King Salmon. He orally promised to pay $10,000 to William York if York could get the road work added to the contract, according to evidence submitted to the court.

York received $1,000 from the contractor as an advance for expenses, then went to Washington, D. C. He was told by a top official of the Department of the Interior that Gaasland would get the road contract provided he submitted a bid within reason and the Alaska Road Commission could arrange for the appropriation. The contract accordingly was awarded in the fall of 1950.

A Whatcom County Superior Court Jury at Bellingham had returned a $2,000 verdict for the expediter but the State Supreme Court unanimously overruled this verdict, holding that an oral agreement for payment of the fee was contrary to public policy and unenforceable.

Bids sought for three-dam project

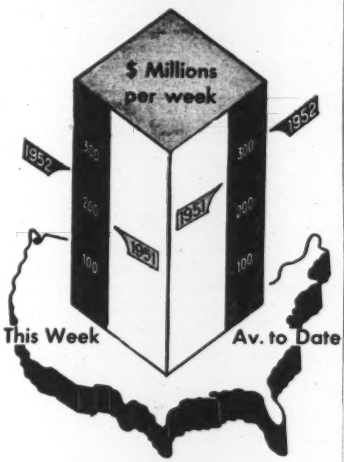
Bids will be called immediately for construction of a $52-million, three-dam project on California's Stanislaus River, following approval of a bond issue by south San Joaquin irrigation district voters.

Residents voted to issue $26 million in revenue bonds as their share of the cost.

The voters in the Oakdale irrigation district had already approved a similar bond issue.

Activity This Week

As reported to ENR (in millions of dollars)



Contracts by type of work

	This Week	Cumulative 50 wks 1952	1951	% chge
Waterworks	$6.9	$216.4	$201.1	+8
Sewerage	9.6	297.8	322.3	−8
Bridges	6.0	405.5	308.4	+31
Highways	11.4	1,383.0	1,137.7	+22
Earthwork, waterways	7.3	475.5	497.3	−4
Buildings:				
Public	44.3	4,253.9	2,012.3	+111
Housg., pub.	6.1	589.7	625.8	−6
Housg., priv.	42.6	2,906.2	1,965.5	+48
Commercial	28.0	812.0	588.0	+38
Industrial	36.3	2,679.2	4,044.6	−34
Unclassified	42.5	1,348.3	1,589.9	−15
Total	**$241.0**	**$15,367.5**	**$13,292.9**	**+16**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes	Base Year = 100 1913	1926	1949
Constr. cost.	Dec. 587.49	282.41	123.16
	Nov. 588.61	282.94	123.39
Bldg. cost.	Dec. 425.26	229.88	120.88
	Nov. 426.04	230.30	121.10
Volume	Nov. 504	205	146

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY.

Bids: December 18, 1952

Construction of Turnpike

WEST VIRGINIA TURNPIKE COMMISSION
ADVERTISEMENT FOR PROPOSALS
NOTICE OF RE-ADVERTISEMENT

Sealed proposals will be received by the West Virginia Turnpike Commission for:

CONTRACT NO. 10

The work to be done under this Contract consists in performing the required grading and drainage for approximately 3.0 miles of the West Virginia Turnpike including the relocation of approximately 0.2 miles of side roads. This work is located between the North Portal of the Standard Tunnel, mile 68.3, and the Town of Miami, mile 71.3, Kanawha County, West Virginia, and is in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

The principal items of work include:

	Approximate Quantity
Clearing and Grubbing	82 Acres
Excavation (all types)	1,650,000 C.Y.
Embankment	732,000 C.Y.
Concrete	3,600 C.Y.
Reinforcing Steel	203,000 Lbs.
Culvert Pipes and Underdrains —3600 Pipe	4,000 Lin. Ft.
Concrete Cribbing	16,400 Cu. Ft.

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia until 9:00 A.M. Eastern Standard Time, and thereafter at the House of Delegates Chamber, State Capitol, Charleston, West Virginia until 10:00 A.M. Eastern Standard Time, on December 18, 1952, at which time and place said proposals will be publicly opened and read.

Contract documents may be seen and may be inspected by prospective bidders during office hours, after November 20, 1952, at the office of Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia, and at the offices of the Engineers, Gannett, Fleming, Corddry & Carpenter, Inc., 123 Forster Street, Harrisburg, Pennsylvania, and at 6218 Penn Avenue, Pittsburgh 6, Pennsylvania, and at Chesapeake, West Virginia.

Contract plans and specifications will be furnished for Fifteen Dollars ($15.00) for each set, which is not refundable, upon application to Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia, Mailing Address: P. O. Box 5266, Capitol Station, Charleston, West Virginia. Cross Sections are bound separately and will be furnished for Forty Dollars ($40.00) for each set. Make checks payable to Howard, Needles, Tammen & Bergendoff.

Proposals must be made upon the proposal forms furnished by the Commission in the manner designated in the Specifications, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the contract on the outside, and must be accompanied by a CASHIER'S or CERTIFIED CHECK or PROPOSAL BOND in favor of the West Virginia Turnpike Commission FOR NOT LESS THAN FIVE (5) PER CENT OF THE AMOUNT OF THE PROPOSAL, but not less than $500.00 nor more than $200,000.00 and must be delivered at the place designated above on or before the day and hour named. Copies of the proposal form and proposal bond form to be used for submitting proposals, and of the special addressed envelope are furnished in detached form with the contract documents.

The contract will be awarded or the proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all proposals, and to waive any or all formalities.

WEST VIRGINIA TURNPIKE COMMISSION
D. HOLMES MORTON, Chairman
November 20, 1952

Bids: December 23, 1952

Palisades Interstate Parkway, N. J. Section 1-F

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Palisades Interstate Parkway, New Jersey Section 1-F, Station 320+05 to Station 422+0, from South of Hillside Avenue to Station 422+0; Grading and Bridges, Borough of Alpine, Bergen County. Length 1.931 miles. The principal items of construction are:

Estimated:

	Roadway Items
38,795	cu. yds. Roadway Excavation—Earth
110,543	cu. yds. Roadway Excavation—Rock
322,361	cu. yds. Borrow Excavation
8,779	cu. yds. Rock Excavation—Subsurface Structures
133,054	sq. yds. 4" Topsoiling
4,143	sq. yds. 5" Macadam Base
7,975	sq. yds. 4" Waterbound Macadam Base
7,975	sq. yds. 3" Waterbound Macadam Inter. Course
1,485	tons Bituminous Concrete Surface
12,473	sq. yds. 10" Reinforced Conc. Pavement
14,689	lin. ft. Rein. Conc. Culvert Pipe
5,108	lin. ft. Corrugated Metal Culvert Pipe
128	Manholes and Inlets
	Bridge Items
1,255	sq. ft. Stone Masonry
84	cu. yds. Dimension Masonry
3,285	cu. yds. Concrete in Structures
152,835	lbs. Reinforcement Steel

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, December 23, 1952, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

More Official Proposals on pages 110, 111, 112

OFFICIAL PROPOSALS

Bids: December 18, 1952

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 18th day of December 1952, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 3				
		William Robinson, District Engineer, Weigh Lock Building, Syracuse, New York				
Cayuga & Seneca	O. T. 52-23P R. C. 52-120	New York State Thruway Ontario section, sub. 3 (Tyre—¾ mile west of Montezuma) Halsey Corners—Savannah Pt. 1 S. H. 8323	4.15 Thy. 0.63 Acc.	8" & 9" Cem. Conc. Pavt. 2 @ 25' Var. Wide=4.78 Mi. Gr. Sep. Alpha I Beam 212.21' Dk. Plate Girder Bridge 620' Twin Conc. Bx. Br. 40'	$215,000 Plans $50	$3,916,000
		DISTRICT No. 5				
		C. R. Waters, District Engineer, 65 Court St., Buffalo, New York				
Erie	O. T. 52-22 S. T. 52-34	New York State Thruway Ontario Section, sub. 14 (Transit Rd. Ransom Rd.) Transit Rd. Interchange Gunville Rd.; Marginal Rds.	5.46 Thy. 3.46 Acc.	2 Crse Cem. Conc. Pavt. 2 @ 25' Var. Wide=6.72 Mi. Asph Conc. Type 1A Opt.=0.03 Mi. Bit. Mac. Ty. 1=1.11 Mi. Bit. Treated Gravel=0.94 Mi. Misc. Work=0.12 Mi. 4 Gr. Sep. Alpha I Beam 201.5', 155.01', 145.54', and 225.9' 1 Gr. Sep. (R.R.) Alpha I-Beam 252'	275,000 Plans $50	5,000,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

OFFICIAL PROPOSALS

Bids: December 15, 1952

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 15th day of December 1952, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following project: in ROCKLAND & WESTCHESTER COUNTIES: J. S. BIXBY, DISTRICT ENGINEER, PLEASANT VALLEY ROAD, POUGHKEEPSIE, N. Y.

Contract No.	Type	Name of Highway and Miles	Deposit for Plans	Bid Deposit	Department Estimate
H T. 52-4	Bridge Superstructure (Tied Steel Arch, Deck Girders & Alph. I-Beam) Including Steel Towers	New York State Thruway-Hudson Section, Subd 9B (Tappan Zee Bridge) 3 miles	$100	$1,800,000	$35,764,000

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The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

U. S. Government

SEALED BIDS FOR THE PURCHASE AND REMOVAL OF CRISTOBAL COALING PLANT, RAILROAD BRIDGE, AND MISCELLANEOUS FERROUS SCRAP, TOGETHER WITH 10 TRANSFORMERS, 31 MOTORS, 2 BALANCE SCALES, PLATFORM SCALE, 20 VARIOUS TYPE MACHINE TOOLS, TANKS, WINCHES, PUMPS AND 43 TON OF NON-FERROUS SCRAP BEING OFFERED FOR SALE BY

U. S. Government

PANAMA CANAL COMPANY, will be received until 10:30 A.M. EST January 21, 1953 at the office of the Superintendent of Storehouses, Balboa, C. Z., and at the office of the Purchasing Agent, Panama Canal Company 24 State St., New York 4, N. Y. Blanks and further information relative to this offering are available at Panama Canal Co., 24 State St., New York 4, N. Y.

OFFICIAL PROPOSALS

Bids: December 15, 1952
DELAWARE RIVER PORT AUTHORITY
CAMDEN, NEW JERSEY
DEMOLITION AND REMOVAL OF BUILDINGS AND ERECTION OF A BRICK WALL

Sealed bids will be received for the Demolition and Removal of Buildings Numbers 529 and 531 Penn Street, Camden, New Jersey and other work on the site to be identified as Contract No. 12-A at the office of the Secretary of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey until 1:30 P.M. Eastern Standard Time, Monday, December 15, 1952 and then and there will be publicly opened and read.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified or cashier's check in the sum of $3,000 payable to Delaware River Port Authority and drawn upon a National or State bank or trust company having an office either in Philadelphia, Pennsylvania or Camden, New Jersey and the Surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of 100 percent, but in no case less than $25,000.

The Authority will afford prospective bidders an opportunity to inspect the work to be done.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids; and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO, SECRETARY

Bids: January 8, 1953

The Construction of the Grant Park Garage (North) at Monroe and Randolph Streets and Michigan Avenue Chicago, Illinois

THE CHICAGO PARK DISTRICT will receive bids until eleven (11:00) o'clock A.M., prevailing Chicago Time, on January 8, 1953, for the furnishing of materials, equipment, labor and services for the construction of the Grant Park Garage (North) at Monroe and Randolph Streets and Michigan Avenue, Chicago, Illinois, in accordance with the provisions of the Form of Proposal, Requirements for Bidding and Instructions to Bidders, Drawings, and Specifications, all of which are on file in, and may be obtained at the office of the undersigned.

Copies of said documents may be obtained by depositing with the undersigned the sum of Fifty Dollars ($50.00) for each set, which deposit will be refunded upon return of the documents in good condition within thirty (30) days after the date upon which bids are opened.

The Proposal shall be accompanied by a certified check in the amount of Three Hundred Thousand Dollars ($300,000.00) as a bid deposit.

The work includes, but is not confined to the following:

Construction of Grant Park Garage (North), Underground Utilities, Restoration of Park Facilities, and All Miscellaneous Work pertinent thereto. Among items included in the construction of the two level underground garage are the following major items:

1. Fifty Five Thousand Five Hundred (55,500) cubic yards of concrete
2. Three Hundred and Fifty Thousand (350,000) cubic yards of general excavation
3. Thirty Three Hundred (3,300) tons of reinforcing steel
4. Eight Hundred (800) tons of steel sheeting

The CHICAGO PARK DISTRICT reserves the right to reject any or all Proposals or to accept any Proposal which, in its judgment will be for the best interest of the public.

Only bids submitted in conformance with the provisions of the Requirements for Bidding and Instructions to Bidders will be considered.

CHICAGO PARK DISTRICT
By C. Wagner, Director of Purchases
Administration Building
425 E. 14th Boulevard
Burnham Park
Date: 12/4/52. Chicago 5, Illinois

OFFICIAL PROPOSALS

Bids: December 17, 1952

Construction of a Water Supply System and Sanitary Sewer System

The Village of Robbins, Cook County, Illinois will receive sealed bids for the construction of a water supply system and sanitary sewer system until eight P.M. (8:00 P.M.) Central Standard Time on the 17th day of December, 1952, at 3327 West 137th Street, Village of Robbins, State of Illinois, at which time and place all bids will be publicly opened and read aloud.

Sealed bids will be received on the following:

Contract "A"—Sanitary Sewers
Contract "B"—Sanitary Sewers
Contract "C"—Water Main and Pumping Station
Contract "D"—Canal Crossing
Contract "E"—Elevated Storage Tank
Contract "F"—Domestic Meters and Meter Vaults

The successful bidder will be required to furnish a satisfactory performance Bond.

The contract documents including plans and specifications are on file at the office of the Village Clerk of the Village of Robbins, Illinois at 3327 West 137th Street, Robbins, Illinois, and at the office of Walter Wilson and Associates, Consulting Engineers, 1509 Jackson Boulevard, Chicago 7, Illinois.

Copies of the documents may be obtained by depositing Ten Dollars ($10.00) with the Village Clerk, or Walter Wilson and Associates, Consulting Engineers, for each set of documents so obtained. The amount of the deposit for one set of documents will be refunded to each actual bidder who returns the plans and documents in good condition within ten days (10) after the opening of the bids.

The Village of Robbins reserves the right to reject any or all bids and to waive any irregularities in bidding.

Each proposal must include a certified check, a cashier's check, or a satisfactory bid Bond in the amount of Ten Per Cent (10%) of the bid.

No bid may be withdrawn after the scheduled closing time for receipt of bids for one hundred and twenty (120) days.

In accordance with Chapter 48, Section 39s-1 and 39s-9, Illinois Revised Statutes, the prevailing rates of wages for labor on work of this type in Cook County are to be paid for this work.

VILLAGE OF ROBBINS, ILLINOIS
Elinor White, Village Clerk

Dated this 2nd day of December, 1952

Bids: December 30, 1952

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time, on the 30th day of December, 1952, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. NICKERSON, District Engineer, 353 Broadway, Albany, New York				
Schenectady	M. T. 52-18	New York State Thruway-	Thy. 4.77	9" Cem. Conc. Pavt. 2 @	$244,000	$4,428,000
	S. T. 52-35	Mohawk Sect., Subd. 1	Acc. 1.50	25' Wide=4.77 Mi.	Plans $100	
	R. C. 52-123	(Mont. Co. L. Gregg Rd.) Co. Rd. 29R; Crawford Rd.; Gregg Rd.; Camp Pattersonville Rd.; Rotterdam Water Tower Access Rd.; Pattersonville Scotch Church S. H. 1482		Bit. Mac. Ty. I=1.07 Mi. Found. Crse. Grav.=0.43 Mi. Gr. Sep. Alpha I-Beam 145.3' Gr. Sep. Alpha I-Beam 227' Gr. Sep. Rigid Fr. 31' Alpha I-Beam Bridge 51.8' Conc. Twin Box Bridge 24'		
		DISTRICT No. 3				
		WILLIAM ROBINSON, District Engineer, Weigh Lock Bldg., Syracuse, New York				
Cayuga & Onondaga	O. T. 52-21P	New York State Thruway-Ontario Section, Subd. 5A, 5B (Port Byron-Jordan); Weedsport Interchange	Thy. 6.52 Acc. 1.33	9" Cem. Conc. Pavt. 2 @ 25' Var. Wide=7.82 Mi. Found. Crse. Grav.=0.03 Mi. Gr. Sep. Alpha I-Beam 206.6'	109,000 Plans $25	1,989,000
		DISTRICT No. 4				
		J. P. LARSEN, District Engineer, Barge Canal Terminal, Rochester, New York				
Monroe	O. T. 52-24	New York State Thruway-	Thy. 2.52	9" Cem. Conc. Pavt. Var.	35,000	637,000
	R. C. 52-121	Ontario Sect., Subd. 8B&9 (Rochester So.-Route US 15 Interchange); West Henrietta-Rochester S. H. 62	Acc. 0.77	Wide=3.22 Mi. Found. Crse. Grav.=0.03 Mi. Grading=0.04 Mi. Gr. Sep. Alpha I-Beam 210'	Plans $15	
		DISTRICT No. 7				
		C. C. CASSEL, District Engineer, 444 Van Duzee St., Watertown, New York				
Franklin	FARC 52-118	Saranac Lake Village-Broadway & River Sts. S. H. 1222	1.80	Asph. Conc. Ty. 1A Opt.	16,000	281,000
	R. C. 52-119	Saranac Lake-Lake Clear Junction Pt. 1 S. H. 1090 Proj. U-644(3)			Plans $10	
Jefferson	FAC 52-17	West Main St.: City of Watertown Proj. U-1106(1)	0.75	Asph. Conc. Ty. 1A Opt.= 0.71 Mi. Misc. Work=0.04 Mi.	20,000 Plans $15	386,000
		DISTRICT No. 10				
		J. J. DARCY, District Engineer, Montauk Highway, Babylon, Long Island, New York				
Bronx	FAMDE 52-6	Major Deegan Expressway (Contract 13) (Interchang at Grand Concourse) Proj. U-1082(6)	1.22	Granite Block Pavt=0.19 Mi. 9" Cem. Conc. Pavt. 2 @ 32' Wide=0.88 Mi. Misc. Work=0.15 Mi. Gr. Sep. Alpha I-Beam 167'	100,000 Plans $50	1,750,000
Suffolk	FARC 52-122	Maywood-Babylon, SH 1841	2.53	9" Cem. Conc. Pavt. 2 @	58,000	1,059,000
	FASH 52-19	Maywood-Babylon, Pt. 2 Babylon Village S. H. 5299 Proj. U 985(7); U-874(4)		25', 50' Wide=1.30 Mi. Asph. Conc. Ty. 1A; Opt. =1.05 Mi. Misc. Work= 0.18 Mi.	Plans $15	

Maps, plans, specifications and proposed forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: December 18, 1952

Spec. SM-49

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on December 18, 1952 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE NEW YORK STATE THRUWAY, HUDSON SECTION, SUBDIVISION 10, TUCKAHOE ROAD TO ROUTE 9 and SOUTHERN WESTCHESTER CONNECTION, SUBDIVISION 11, NEW YORK CITY LINE TO TUCKAHOE ROAD, WESTCHESTER COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-49.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.
(c) Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $23,475.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,178.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Superintendent of Public Works

Bids: December 30, 1952

Gasoline-Engine Generator Sets

CONTRACT 437

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, December 30, 1952, for Contract 437, for furnishing, testing, delivering and unloading gasoline-engine generator sets with switchgear and appurtenances for the West Branch and the Kensico South effluent chambers of the Delaware Aqueduct, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of two thousand dollars ($2,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, requirements as to surety, etc., can be obtained in Room 1316 at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHAN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3854) will be received at Denver, Colorado, until January 6, 1953 for furnishing eight vertical-type traveling water screens, complete with screen drive, splash housing, spray pipe and gate valve, refuse trough, detachable tooth head sprocket, and screen guides for Delano-Earlimart Irrigation District, Friant-Kern Canal Distribution System, Central Valley Project, California. Delivery is desired within 270 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner

Department of Commerce, Bureau of Public Roads, December 1, 1952. SEALED BIDS will be received at the office of the Bureau of Public Roads, 214 Globe Building, 4th & Cedar Streets, St. Paul, Minnesota, until 11:00 a.m., C.S.T., JANUARY 7, 1953, for Minnesota Forest Highway Project No. 5-L.M., Superior National Forest, Cook County, Minnesota. 10.560 miles Grading, Draining and Gravel Surfacing on the Grand-Marais-Gunflint Road. The approximate quantities of the more important items are 65 acres Clearing and Grubbing, 183,000 cu. yd. Excavation, 76,000 cu. yd. Borrow and 27,200 cu. yd. Gravel. Minimum wage rates have been fixed as required by law. Plans, Specifications and Proposal forms are available upon request at the address given above, or Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia. H. J. Spelman, Division Engineer.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3853) will be received at Folsom, California, until December 30, 1952, for furnishing labor and materials for: Camp Creek Diversion Dam and Access Road, Sly Park Unit, American River Division, Central Valley Project, California. Location: 15 miles east of Placeville, Eldorado County, California. Principal items are: Excavation 17,500 cu. yds.; concrete 475 cu. yds.; installing gates, hoists, and metalwork 21,000 lbs.; and other work. Completion time 275 days. For particulars, address Bureau of Reclamation, Folsom, California; or Building 53, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3852) will be received at Coulee Dam, Washington until December 23, 1952, for furnishing labor and materials for: Drilling for stabilization of Right Bank, Grand Coulee Dam. Location: Coulee Dam, Washington. Principal items are: 2420 lin. ft. of holes for 6 in. casing; drilling 1900 lin. ft. for 12 in. casing; and other work. Completion time 180 days. For particulars, address Bureau of Reclamation, Coulee Dam, Washington; or Building 53, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner

UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION

NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. 703C-290 for furnishing labor and materials and preforming all work for the construction of earthwork and asphaltic membrane lining Northport Canal, Station 1055+25 to Station 1092+25, North Platte Project, Wyoming-Nebraska, will be mailed to P. O. Box 280, Casper, Wyoming, or delivered to the office of the Bureau of Reclamation in time for the public opening at 10:30 a.m., Mountain Standard Time, December 23, 1952, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming.

Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado; and I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the specifications and drawings furnished for bidding purposes; for all others $0.25 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

OFFICIAL PROPOSALS

Bids: January 6, 1953

Furnishing & Delivering Equipment of Ventilation for a Tunnel

WEST VIRGINIA TURNPIKE COMMISSION

Sealed proposals will be received by the West Virginia Turnpike Commission for:

CONTRACT NO. 15-A

The work to be done under this Contract consists of the furnishing and delivering of ventilation equipment for a two-lane vehicular tunnel approximately one-half mile long with a ventilation building at each portal to be constructed under other contracts in connection with the construction of the West Virginia Turnpike in the State of West Virginia. The southerly ventilation building of the tunnel is located in the vicinity of Four Mile Fork about one-half mile west of the town of Standard and the northerly ventilation building is located at approximately Mile 68.3 in the vicinity of Giles Creek about one and one-half miles east of the town of Fairfield in Kanawha County, West Virginia.

The installation of the ventilation equipment will be done under another contract.

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston, West Virginia until 9:00 A.M., Eastern Standard Time, and thereafter at the Woman's Club of Charleston, Virginia and Elizabeth Sts., Charleston, West Virginia until 10:00 A.M., Eastern Standard Time, on January 6, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be seen and may be inspected by prospective bidders during office hours, after December 5, 1952, at the office of Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia, and at the offices of the Engineers, Singstad & Baillie, 24 State Street, New York, N. Y.

Contract plans and specifications will be furnished for Fifteen Dollars ($15.00) for each set, which is not refundable, upon application to Howard Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia. Mailing address: P. O. Box 5266, Capitol Station, Charleston, West Virginia. Make checks payable to Howard, Needles, Tammen & Bergendoff.

Proposals must be made upon the proposal forms furnished by the Commission in the manner designated in the Specifications, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the contract on the outside, and must be accompanied by a CASHIER'S or CERTIFIED CHECK or PROPOSAL BOND in favor of the West Virginia Turnpike Commission FOR NOT LESS THAN FIVE (5) PER CENT OF THE AMOUNT OF THE PROPOSAL, but not less than $500.00 nor more than $200,000.00 and must be delivered at the place designated above on or before the day and hour named. Copies of the proposal form and proposal bond form to be used for submitting proposals, and of the special addressed envelope are furnished in detached form with the contract documents.

The contract will be awarded or the proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all proposals, and to waive any or all formalities.

WEST VIRGINIA TURNPIKE COMMISSION
D. Holmes Morton, Chairman

December 2, 1952

Bids: January 6, 1952

Grading and Drainage on Turnpike

WEST VIRGINIA TURNPIKE COMMISSION

Sealed proposals will be received by the West Virginia Turnpike Commission for:

CONTRACT NO. 9

The work to be done under this Contract consists in performing the required grading and drainage for approximately 5.1 miles of the West Virginia Turnpike including marginal roads and the substructures for five overpasses. This work is located between the Town of Ghent, mile 20, and the vicinity of the overpass at Route 40, mile 25, Raleigh County, West Virginia, and is in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

OFFICIAL PROPOSALS

The principal items of work include:

	Approximate Quantity
Clearing and grubbing	80 acres
Excavation (all types)	800,000 c. y.
Embankment	781,000 c. y.
Concrete	5,300 c. y.
Reinforcing Steel	582,300 lbs.
Culvert pipes and underdrains	9,700 l. f.

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia until 9:00 A.M., Eastern Standard Time, and thereafter at the Women's Club of Charleston, Virginia and Elizabeth Streets, Charleston, West Virginia until 10:00 A.M., Eastern Standard Time, on January 6, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be seen and may be inspected by prospective bidders during office hours, after December 9, 1952, at the office of Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia, and at the offices of the Engineers, Fay, Spofford and Thorndike, 11 Beacon Street, Boston 8, Mass. and 305 Reservoir Road, Beckley, West Virginia.

Contract plans and specifications will be furnished for Twenty-Five Dollars ($25.00) for each set, which is not refundable, upon application to Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia. Mailing address: P. O. Box 5266, Capitol Station, Charleston, West Virginia. Cross Sections are bound separately and will be furnished for Forty Dollars ($40.00) for each set. Make checks payable to Howard, Needles, Tammen & Bergendoff.

Proposals must be made upon the proposal forms furnished by the Commission in the manner designated in the Specifications, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the contract on the outside, and must be accompanied by a CASHIER'S or CERTIFIED CHECK or PROPOSAL BOND in favor of the West Virginia Turnpike Commission FOR NOT LESS THAN (5) PER CENT OF THE AMOUNT OF THE PROPOSAL, but not less than $500.00 nor more than $200,000.00 and must be delivered at the place designated above on or before the day and hour named. Copies of the proposal form and proposal bond form to be used for submitting proposals, and of the special addressed enveloped are furnished in detached form with the contract documents.

The contract will be awarded or the proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all proposals, and to waive any or all formalities.

WEST VIRGINIA TURNPIKE COMMISSION
D. Holmes Morton, Chairman

December 2, 1952

The minute you seal the envelope you seal the verdict...

NOBODY but a bidder can decide, practically, whether he, or someone else, will be the successful bidder on any contract . . . because it is you—the bidder—who decide what you will charge to do the work. Nobody can decide that but you. So, you actually "write your own ticket".

NATURALLY, you must deliver certain specified material and perform definite functions, within a certain time—that much of the job is something over which you have no control. But . . . it is when you begin to plan ways and means of DOING the job that you start to win or lose it. If you can do it more quickly, with less loss of motion, and, possibly, with fewer man-hours to charge against the job—in other words, at a lower cost to you—you will have the "edge" you need to make you the successful bidder.

LOW cost operation is usually the result of a thorough knowledge of the most efficient methods — and the use of modern equipment. You will be well repaid through your reading of ENGINEERING NEWS-RECORD — both editorial and advertising.

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.
POSITION WANTED & INDIVIDUAL SELLING OPPORTUNITY undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.50 a line an insertion.

INFORMATION:
BOX NUMBERS count as 1 line additional in undisplayed ads.
DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:
The advertising rate is $17.10 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

NEW ADVERTISEMENTS Address New York City Office, 330 W. 42nd St., N. Y. 36, for December 25th issue closing December 12th

ENGINEERS
and
DESIGNERS

Arthur G. McKee and Company has permanent openings in their Cleveland, Ohio and Tulsa, Oklahoma offices for qualified men as:

Instrument Specifications Engineers
Piping Designers
Pressure Vessel Designers
Chemical Engineers

with experience in oil refinery design.

Good hourly rates plus overtime
45 hours—5 days per week
Annual profit-sharing bonus
No age limitation

These are permanent positions which are well worth you investigating.

Write giving complete details of education and experience to:

ARTHUR G. McKEE & CO.
2300 Chester Ave., Cleveland 1, Ohio

REPLIES (Box No.): Address to offe nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

DESIGN ENGINEERS—Men having experience in design and preparation of drawings and reports for highway, sanitary sewer and municipal-type storm drainage systems including inlets, collection systems, interceptors and culverts. Good pay for qualified men with training and experience. Opportunity for advancement. Furnish full information regarding education, training and experience, age, references and salary required. Replies strictly confidential. P-6036, Engineering News-Record.

DESIGNERS-DRAFTSMEN, for highways and bridges. Excellent opportunities. Be prepared to submit complete experience record. Ammann & Whitney, Consulting Engineers, 76 Ninth Ave., New York 11, N. Y.

ENGINEERS EXPERIENCED in water and sewage works projects or related fields. Opportunity for permanent connection with long established consulting firm. Please state full qualifications, experience and salary requirements. Location Ohio. P-6220, Engineering News-Record.

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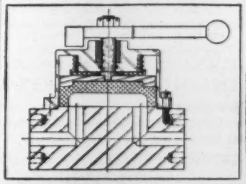

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P-6240, Engineering News-Record
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P-5997, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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P-6196, Engineering News-Record
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P-6222, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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POSITIONS VACANT

(Continued from preceding page)

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(Continued on the opposite page)

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PW-5980, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS WANTED
(Continued from opposite page)

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FS-6156, Engineering News-Record
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W-6182, Engineering News-Record
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W-5900, Engineering News-Record
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FR-6242, Engineering News-Record
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Because of the Christmas Day Holiday, December 25th, the "Searchlight" pages of the

December 25th Issue of

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Close for press earlier than the usual weekly closing time.

The cooperation of advertisers is solicited in forwarding new copy, or changes of copy, to reach us accordingly.

FINAL CLOSING TIME
Display and Undisplayed Ads
Friday, December 12th

PROPOSALS
Thursday, December 18th

SEARCHLIGHT SECTION

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Abrasive blades designed to cut any kind of material

The photos above show only three of the hundreds of applications to which contractors can put the three new types of abrasive blades made by the Porter-Cable Machine Company and designed to fit its new high-speed, kick-proof electric saw.

The worker in the photo at the left is using the new red label blade which cuts compositions such as Transite, Mycaloy, asbestos, Masonite, fiber board; and non-ferrous metals such as aluminum roofing, copper gutters, zinc flashing, bronze pipe, etc.

In the center photo another workman is using a green label blade which has been designed to cut all stone and masonry products, including concrete or cinder blocks, brick, tile terrazzo, marble, slate, granite, porcelain, and plastic materials such as Lucite, Bakelite, etc.

In the right-hand photo a third workman is using a blue label blade reserved for iron and steel in their various forms.

The company found that there was a general air of indecision on the part of contractors unable to decide which of the numerous abrasive blades on the market was the right one for cutting a particular substance. The company's research division tested a complete variety of abrasive blades on every kind of material and charted the results. These tests proved that only three types of blades were necessary to cut, score or grind almost any material, and for quick identification the company packages these new blades in their three different colors to designate respective uses.

The blades are reinforced and semi-flexible to reduce danger of breakage. The abrasive edge produces a quicker, cleaner cut, and the side of the blade can also be used as a grinding wheel to de-burr, bevel or polish. Blades are available in 6-, 7- and 8-in. diameters.

According to the manufacturer, the new blades may be used on any electric saw, but for two reasons they will cut most effectively when used on one of the company's Speedmatic or guild saws.

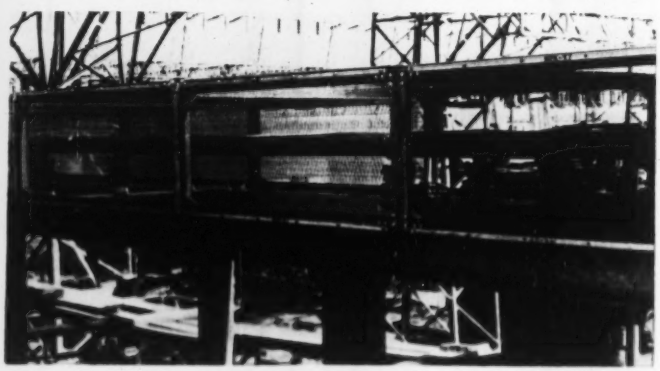
These have a much higher rpm than most makes, and abrasive blades cut cleaner and last longer when run at high speed. Secondly, the Porter-Cable saws have a new patented kick-proof clutch. If the blade jams or binds in the work, it stops instantly, while the slip clutch allows the motor to keep on running. This protects the operator from injury, prevents damage to either the blade or the material being cut, and avoids motor burn-out. PORTER-CABLE MACHINE COMPANY, EXCHANGE STREET, SYRACUSE 8, N. Y.

Expanded aluminum housing protects bus bars

Hanging high tension electrical bus bars many feet above the ground is not enough to isolate them from trouble. This point was determined on the Tennessee Valley Authority's new plants where birds and flying debris are constant hazards.

In large generating plants a bird lighting among the buses disappears with a burst of flame. What is worse, this usually results in a short circuit which can cause interruption in power supply and may even damage

(*Continued on page 125*)



Even in Alaskan weather extremes,

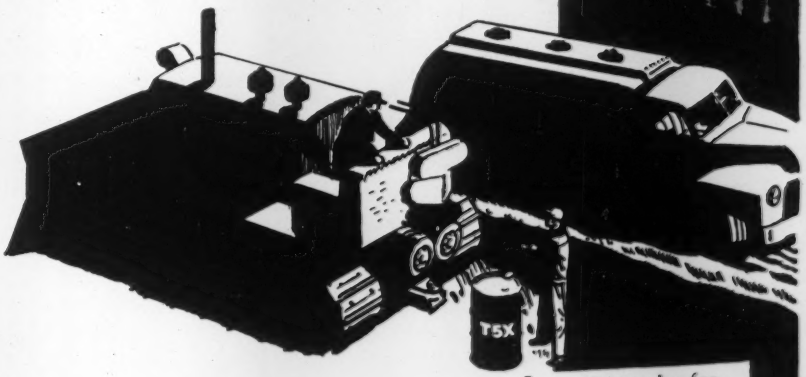
T5X GIVES SUPERIOR ENGINE PROTECTION

Anchorage construction man reports success with amazing *purple* oil

Mr. Jack Lowe, owner of the Lowe Excavating Company in Anchorage, Alaska, recently said: "During the past two years, I have broken in my new Allis-Chalmers tractors on T5X motor oil exclusively. I think T5X is the best motor oil on the market, for I have never had any bearing, ring or valve trouble since using this product."

T5X is made from the finest base stocks that modern refinery equipment can produce. Special-purpose compounds have been added to these superior base stocks to give you an oil that's unexcelled in heavy-duty lubricating ability.

This amazing *purple* oil contains a special inhibitor that retards oxidation and gives high heat stability. A neutralizing agent in T5X protects against corrosion. Another ingredient suppresses foaming under the most *severe* operating conditions. With heavy-duty T5X, wear is reduced to a minimum!



Compare the performance of T5X with the motor oil you are now using. You will find that T5X lasts *far* longer and gives your engine *greater* protection under *every* operating condition.

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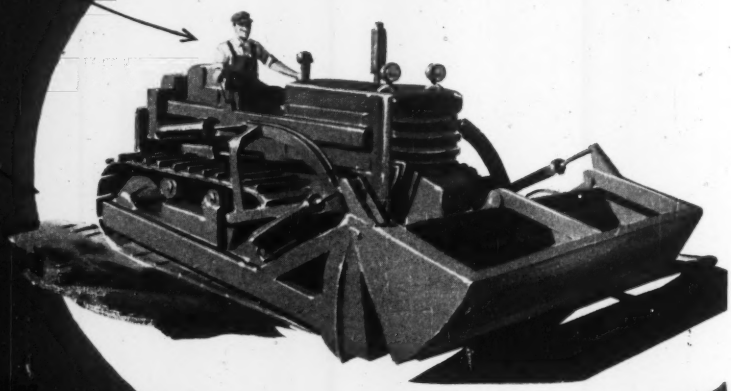


TOUSEY PRODUCTS

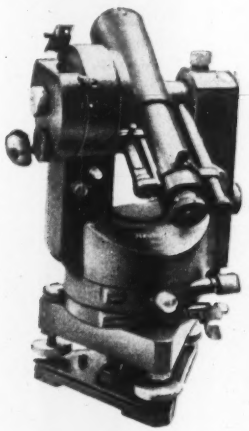
DURACOTE for DURABILITY

THE TOUSEY VARNISH COMPANY

(Continued from page 122)
generating equipment severely.

TVA engineers solved the problem with Penmetal aluminum expanded metal. They designed a light-weight, non-corrosive housing for outdoor bus bars made up on a structural aluminum frame and so designed that it can be removed for inspection work in a matter of minutes.

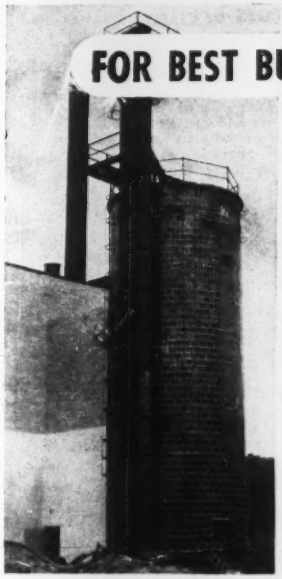
The new housings add a minimum load to the main supports for the bus bars. Expanded aluminum naturally weighs less than solid sheet and offers little or no wind resistance. A further benefit claimed for the expanded metal is its lower cost in comparison with sheet of equal area. The expanded form of the metal is actually stiffer than the sheet, according to the manufacturer. PENN METAL COMPANY, INC., 205 E. 42ND STREET, NEW YORK 17, N. Y.



Six-second optical transit has erect image

Most of the precise optical transits developed in Europe have one thing in common—they show an inverted image—just as that shown in any astronomical telescope. Geo-Optic Co., an Austrian concern with outlets in the U.S., has corrected this situation in its new G50, a six-second instrument, and it shows an erect image, like most American makes.

Both vertical and horizontal circles are completely inclosed and are read through a single eyepiece. Daylight is reflected into the instrument through an adjustable mirror which can be replaced by a battery-powered light for night work or in tunnels, mines, etc. An optical plummet is provided on the G50, but, in addition, a plumb



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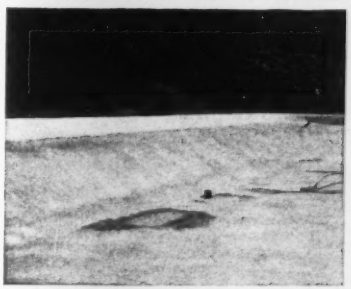

OLD RESERVOIR MADE BETTER THAN NEW

with "GUNITE" lining placed over the original lining.

The two pictures show the reservoir belonging to the Borough of Hellertown, Penna. The upper view shows the "GUNITE" work in progress, and the lower view the completed lining.

This old concrete lined reservoir was badly cracked and disintegrated with considerable leakage.

We chipped out the disintegrated concrete, sandblasted the entire area, and placed a minimum of two inch "GUNITE" reinforced with heavy mesh.

This reservoir is now water-tight and better than new.

Our 72-page bulletin A-2400 describes many reservoir jobs and scores of other uses of "GUNITE."

Write for your copy of bulletin A-2400

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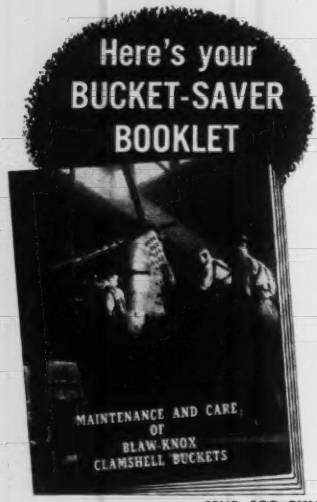
"GUNITE" CONTRACTORS

GENERAL OFFICES—ALLENTOWN, PENNA. U.S.A.

MANUFACTURERS OF THE CEMENT GUN



40 PAGES OF USABLE INFORMATION
including complete details about . . .

HOW TO SAVE YOUR BUCKET
Among the many "bucket saver" suggestions are a list of "do's" and "don'ts" on the use and abuse of clamshell buckets; tips on how to prolong cable life; common operating mistakes that make bucket lips bow in or bend out.

HOW TO GET THE MOST FROM YOUR BUCKET
"How to Reeve the Bucket for Maximum Efficiency" is illustrated and described in detail. One page is devoted to instructions for operators.

HOW TO REPAIR BUCKETS
Methods of renewing the cutting edges of worn bucket lips include special welding precautions. This section contains instructions for removing and replacing ball bearings in lever arm sheaves, lubrication instructions, and many other practical hints for care and maintenance of clamshell buckets.

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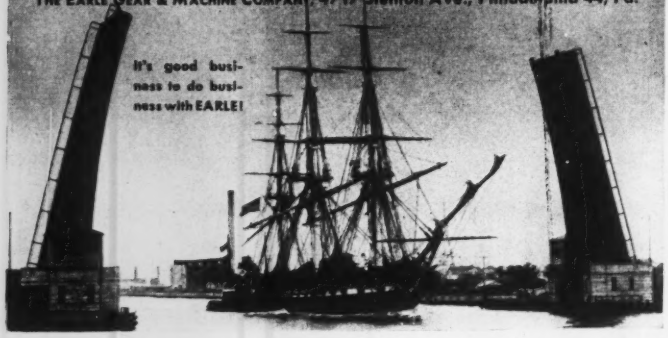
...is this proud symbol of our country's naval history, the U.S.S. Constitution, shown here being towed through the Beaumont Ship Canal at Port Arthur, Texas.

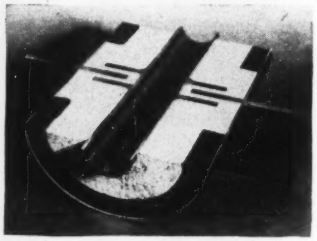
And just as well known to bridge builders the world over is the Earle Gear operating machinery which helps raise this and many other bascule bridges.

Builders know from experience that Earle bridge equipment is efficient and unfailing, provides years of trouble-free economical operations. Behind all Earle Gear operating machinery stands a highly skilled and experienced Earle engineering staff, ready to help you with your gear or machinery problems. Write today for engineering service, information or catalogs.
THE EARLE GEAR & MACHINE COMPANY, 4717 Stenton Ave., Philadelphia 44, Pa.



NEW PRODUCTS

bob and string are provided for those who would rather use them. All adjustments can be made from the rear of the instrument to preclude walking around tripod legs and possibly disturbing a setup. GEO-OPTIC CO., INC., 170 BROADWAY, NEW YORK 38, N. Y.



Anchor holds insulated pipe; stops electrolytic action

Durant Insulated Pipe Company has been granted basic patents on a new type of insulated anchor shown in a cutaway cross section. It has been designed for use in underground insulated pipe systems conveying hot or cold liquids or gases. The anchor is so constructed that contact is eliminated between anchor plate and pipe.

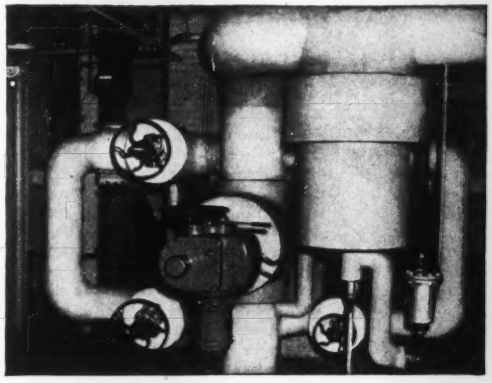
The plate is insulated from the pipeline both thermally and electrically by a non-compressible block of Transite sheet material. The design and material serve to minimize heat loss at anchorage points and to prevent pipeline corrosion because of electrolytic action. According to the manufacturer, the entire line can now be insulated from ground by taking supplementary precautions to insulate the line at terminals. DURANT INSULATED PIPE CO., WARREN WAY AND BAY ROAD, PALO ALTO, CALIF.

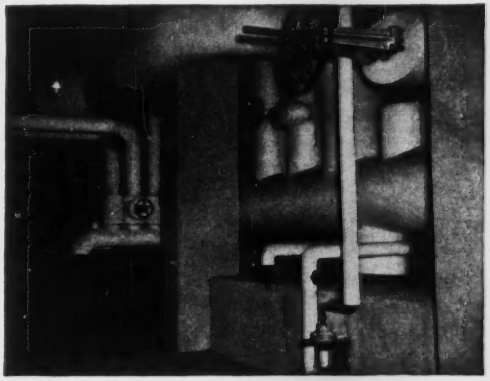
Wood Preparizer usable alternately as soil blender

In one operation, the Wood Model P-600 Preparizer scarifies and pulverizes old asphalt mats for 100% re-use. It can handle mats up to 6 in. deep through a 6-ft wide panel, and has a capacity up to 1,500 sq yd per hr. Aggregate is returned to its original size in one to three passes. According to the manufacturer this P-600 will reprocess any asphalt material that can be scarified by a motor grader.

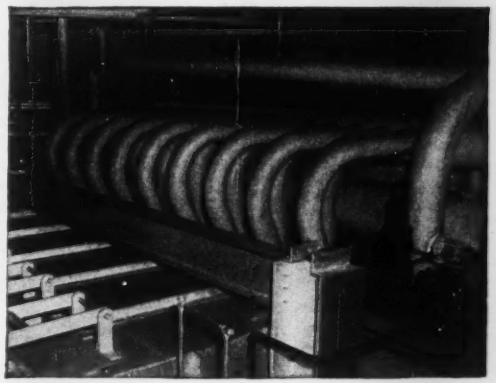
The company now offers an attachment which converts the preparizer into a soil blender whenever needed.

(*Continued on page 128*)





High temperatures call for the high efficiency of K&M insulations



One of the most efficient combinations for insulating equipment with temperatures up to 1900° F. consists of K&M "Featherweight" 85% Magnesia and Hy-Temp Insulation.

Hy-Temp Insulation, which has exceptional heat-resisting qualities, is applied directly to the hot surface. When a sufficient thickness is used, the temperature of the insulation's outside surface can be brought to 600° F. or lower. "Featherweight" 85% Magnesia, which has a higher insulating value, is then applied directly over the Hy-Temp Insulation. Thus, the special qualities of both materials are effectively used.

Your K&M distributor, an experienced applicator, will gladly answer your questions about these products. Or, write to us for complete information.

KEASBEY & MATTISON
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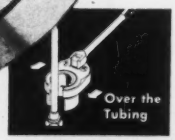
SAVE A FORTUNE

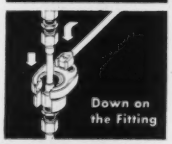
- IN TIME
- TOOLS and
- TUBING

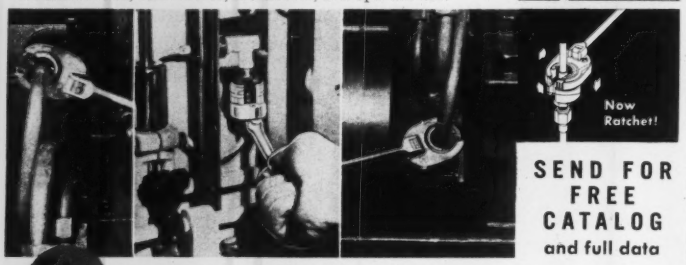
TAC Open End Ratchet Wrench Performs "Impossible" Jobs on Tubing, Conduits, Cables, Pipe, Long Studs...

For the first time in tool history a wrench that passes over and *around* tubing, drops straight down onto fittings, then ratchets on or off as fast as your arm can swing. Limited clearance? The TAC functions from any conceivable direction, slips into "impossible" mazes, ratchets with as little as 7° arc of handle clearance. No other single tool can do all this! All reports of resulting speed and ease seem incredible until you've tried the TAC yourself.

Now available to you, the Socket Type Open End Ratchet Wrenches are sold singly or in sets (consisting of several sockets, a ratchet head, square drive handle and enameled steel box.) 6 sets, 64 sizes of sockets from ⅜" to 4". Adaptors also available for allen heads, screwdriver, turnbuckle, and Spanner use.







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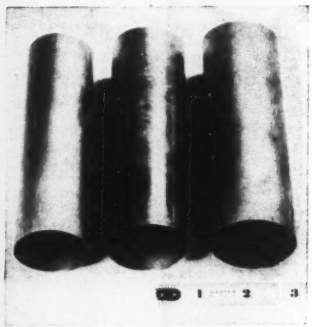
SPRAGUE & HENWOOD, Inc.
Dept. E, Scranton 2, Penna.

NEW PRODUCTS

The machine will blend different types of soil with water into a homogeneous mass to depths up to 24 in. loose or 12 in. compacted.

An International Harvester UD24, 180-hp diesel now replaces the previous power plant, representing an increase of 55 hp over the former engine. In addition, drive-on paddles replace the old time-consuming method of bolting paddles to the rotor shaft. The new type is said to be easily and quickly driven on or off with a sledge, saving considerable time for paddle replacement. Wood Manufacturing Company, P. O. Box 620, 6900 Tujunga Avenue, North Hollywood, California.



Seamless and thin-wall tubing in bigger diameters

Specialty tube mills heretofore have offered larger diameter, light-wall tubing only in welded grades. Superior Tube Company has announced an increase in its size range of seamless light-wall tubing from 1¼ in. OD maximum to 2⅞ OD. They expect to increase the number of applications of light-wall tubing particularly where pressures exceed the limits for welded tubing.

The company's large diameter light-wall seamless tubing is furnished in three stainless analyses—AISI Types 304, 321 and 347 and in Monel metal. It is also produced in three tempers: No. 1 fully annealed, No. 2 half-hard drawn and No. 3 full-hard drawn. Length ranges from 5 to 22 ft in random, multiple or cut lengths. Standard OD tolerances are +.005 in. to −.000 in. on tubing up to 1½ in. OD. On tubing from 1¼ OD to 2⅞ OD inclusive the tolerances are +.010 in. −.000 in. Wall thickness tolerances is +10% on all sizes. Superior Tube Company, 1596 German Avenue, Norristown, Pennsylvania.

New Product briefs . . .

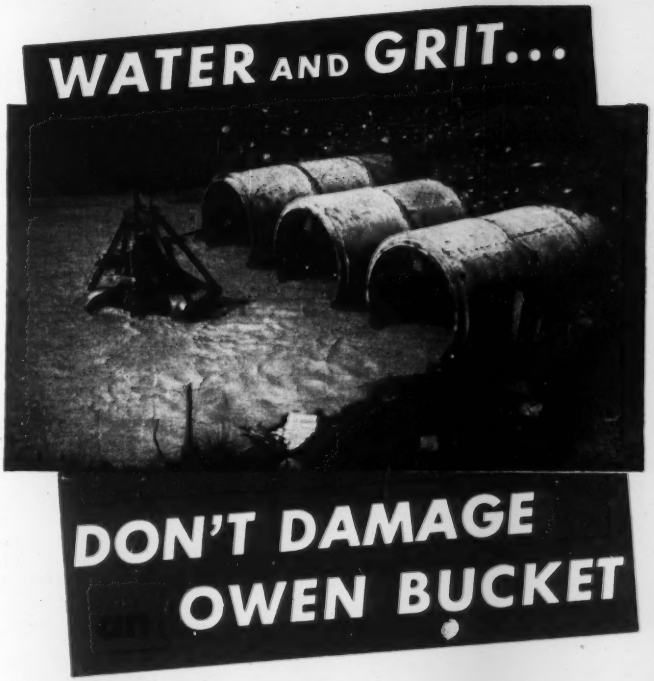
A new special model of the **Bostitch T5 gun-type stapling tacker** has a grooved-nose for installing parallel wires used in installation of telephones and other electrical connections. It fits snugly over the flat wire holding it firmly against the wood until its handle can be squeezed and a staple driven into the wood, straddling the wires and holding them firmly. It is particularly useful in confined spaces where it might be difficult to swing a hammer, according to the manufacturer—**Bostitch, 897 Mechanic Street, Westerly, R. I.**

A new profitable diesel engine pyrometer has just been announced by **The Bristol Company, Waterbury 20, Conn.** The thermocouples can be installed in each cylinder and in the main exhaust line so that temperature can be checked at any time by inserting the pyrometer prongs into the corresponding receptacles in the terminal head of the thermocouple. It's labelled Model 4-321.

Sauerman Bros., Inc., 532 S. Clinton St., Chicago 7, have enlarged their line of Durolite tempered steel sheave blocks by adding a block designed essentially for slushing, mucking and wrecking duty. Made of heat-treated alloy steel, they have extra wide openings to pass knotted cable.

Test thermometers often must be held by hand and ambient heat is often too great for the operator to bear. With this new handle type instrument, a comfortable hand grip is provided on opposite sides of the dial so that the unit can be plunged directly into hot asphalt, foundry sand, chemical mixtures, etc., without burning the operator. They are available in various dial diameters and in stem lengths up to 72 in. from **W. C. Dillon & Company, Inc., 14620 Keswick Street, Van Nuys, Calif.**

By utilizing built-in permanent magnets, **Magne-Grip soft jaws for vises** are snapped into position quickly and easily, eliminating clumsy, awkward devices previously used for attaching and holding vise jaws in place. They hold securely and can be removed by simply lifting them off. Manufactured by **Magne-Grip Tool Company, 4900 West Madison Street, Chicago 44, Illinois,** they are made of an alloy that won't mar, scratch or gouge delicate finishes or highly polished metals and preclude need for padding, according to the manufacturer.



With a less expertly designed bucket water would likely carry abrasive sand and grit into the bearings causing excessively rapid wear and deterioration.

Not so with an Owen.

Years ago Owen engineers learned the hazards of difficult underwater service.

And through experimentation and experience they designed bearings that retard these destructive forces.

For the protection of your buckets and in your own financial interest "buy an Owen" equipped with *abrasion resisting, pressure-lubricated bearings.*

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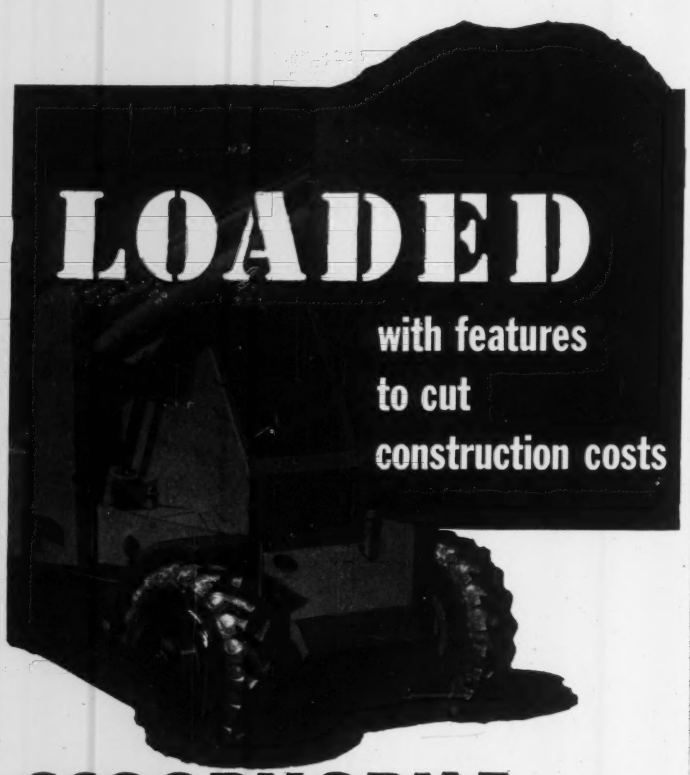

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FULL HYDRAULIC FRONT-END LOADER

Handle more loads per hour . . . and a heaping bucketful every time . . . with the all-hydraulic SCOOPMOBILE engineered to cut costs and accidents on every construction job.

Bucket on powerful hydraulic arm scoops a smooth arc and automatically levels for fast cycle lift to dumping position. Tricycle chassis and power steering give maximum maneuverability. Operator in clear-vision safety cab directs every operation with finger-tip controls.

Years-ahead design and rugged construction give long life and heavy-duty service.

It dozes . . . scoops . . . transports . . . backfills . . . loads all types of bulk materials.

- **Standard ¾ cu. yd. bucket scoops chassis-width track.**
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PUBLICATIONS

Joint Sealing Compound—A new, revised, 4-p data sheet describing Flintseal rubber asphalt hot-poured joint sealing compound for concrete pavements has been issued by the Flintkote Co. Illustrations show the latest specialized equipment used for melting and pouring Flintseal and also methods and machines used in cleaning and preparing joints for sealing. A copy of the new data sheet No. I-H 601, may be obtained from THE FLINTKOTE COMPANY, 30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

Cold-Laid Insulation—An 8-p, two-color booklet has been issued for use by insulation contractors, architects, insulation manufacturers and building owners. With detailed charts, photographs and tables, the booklet provides valuable data on typical applications of Laykold insulation adhesives, Laykold cement and Laykold weathercoat. These asphaltic products are applied cold—eliminating the expense of costly heating equipment—with spray, broom or trowel. AMERICAN BITUMULS & ASPHALT COMPANY, 200 BUSH STREET, SAN FRANCISCO 4, CALIFORNIA.

"Know Your Carburetor"—is the title of a 46-p carburetor handbook written by the Research Staff of the Gumout Division, Pennsylvania Refining Company. The new booklet, profusely illustrated, is particularly pointed to the man who has not had extensive training in carburetor servicing. It describes in non-technical language the basic theory of the carburetor, its various parts, and the carburetor troubles usually encountered and how to correct them. PENNSYLVANIA REFINING COMPANY, 2686 LISBON ROAD, CLEVELAND 4, OHIO.

Industrial water conditioning equipment—You can have water conditioning for your industrial plant; what's more you can have it designed and installed to fit your needs exactly.

Uniflow has entered the industrial field "with both feet" after making many practical industrial installations over a period of years. Its new 4-page folder explains how the company will recommend, without charge, whether or not your plant needs this equipment.

One page shows a complete softening, filtration and iron removal plant. A twin tank industrial softener, it includes piping, top header, lower header, control valve, brine tank, exchanger bed and mineral tank. A ca-

pacity table is included for each of the seven different models. UNIFLOW MANUFACTURING COMPANY, ERIE, PENNSYLVANIA.

Pick-up Inserts for Tilt-up Slabs—To provide a faster and more efficient method of up-ending tilt-up slabs, Superior Concrete Accessories, Inc. has developed a pick-up insert.

Their 4-page folder shows how the insert, using two 1-in. coil bolts, will lift safely a load of 11,000 lb when embedded in slabs of 3,000-lb concrete.

It explains how as a slab is tilted from horizontal to vertical, the load on the bolt changes from 100% tension to 100% shear.

Another section of the booklet (Bulletin TU-1) shows two types of anchors made by the company to hold slab panels in position with braces after they have been raised. SUPERIOR CONCRETE ACCESSORIES, INC., 4110 WRIGHTWOOD AVENUE, CHICAGO 39, ILLINOIS.

P&H ¾-yd Shovel—A large picture book of its Model 255-A power shovel has just been published by Harnischfeger Corporation. The 24-page, two-color bulletin makes liberal use of big detailed photos to show design features and various components of this ¾-yd machine which can be converted for seven different services.

Labeled Bulletin X71-4, it lists many improvements made in the Model 255-A over the last several years and is available from HARNISCHFEGER CORP., 4400 W. NATIONAL AVENUE, MILWAUKEE 46, WISCONSIN.

Insulated Porcelain Enamel Panels—Seaporclad panels are of sandwich construction with skins of diversified metals laminated under high pressure to fire-resistant, thermal and sound-insulating cores. The product is available with two faces of porcelain enameled steel or with one porcelain side and one opposite skin of another sheet metal material. They can be used to provide single exterior-interior walls, as a veneer, ashlar, permanent or removable partition, fully described in an 8-page technical bulletin.

The booklet outlines properties of the new insulated panels, provides seven detail drawings showing possible installation methods and describes their use in the construction of a hospital and school building in particular. SEAPORCEL METALS, INC., 28-20 BORDEN AVENUE, LONG ISLAND CITY 1, N. Y.

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EDITORIALS

Dam dedications

DEDICATION of Davis Dam this week (p. 28) leaves no Bureau of Reclamation dam undedicated. Federal officials have had a field day in recent months getting their projects properly launched. And the ceremonies always seem to come at the right time for maximum news coverage. This was shown by the dedication of Hungry Horse Dam during the presidential campaign. The Davis Dam proceedings came at a time when a maximum number of western state governors could attend. There certainly was no construction event that made ceremonies at this time propitious. Power has been generated for more than a year, and some construction contracts are still under way.

Certainly no one in the construction industry would argue that proper dedication ceremonies are unnecessary. When such proceedings actually mark the completion of a project, and highlight the benefits it provides, as well as the engineering and construction effort that created it, they are very much worthwhile. But when dedications are held strictly for the political publicity involved, then it would be far better that the structures go undedicated.

A tax on research

JUST AS THOUGH the privately supported colleges did not have enough financial troubles, the Bureau of Internal Revenue now plans to require them to pay taxes on "research carried on for the primary purpose of commercial or industrial application." Only fundamental research and research for government agencies are exempt. Research classified as fundamental will be carefully scrutinized by the bureau as to its freedom from commercial taint. The bureau is acting under Title III of the Revenue Act of 1950, part of which was written after the Congressional Joint Committee on Internal Revenue had made a study of the commercial activities of colleges.

Prime movers in getting Congress to make such income taxable were the private research laboratories, which have to compete with the schools for research work. They had logic and equity on their side, which could not be ignored, despite the need of the colleges for more income and the advantage of being able to let some of the college staff get experience in research.

In the long run the effect of the tax on the colleges probably will not be as serious as it now appears to some of them. They will have to charge fees more nearly on a par with those of commercial laboratories, but that is no more than fair, businesslike and in keeping with the philosophy of a private-enterprise economy. Since the officers of companies buying the research may be expected to subscribe to this philosophy they logically could be expected to continue to allocate some of their research work to the schools even though the cost will be somewhat higher than formerly. So college income from commercial research may not in fact be cut as much as is feared.

Moreover, if only those research projects that will return a worthwhile profit are undertaken by the colleges, another advantage may be gained. Some schools have been criticized for giving too much attention to commercial research and not enough to their basic task of teaching. For these, a reduction in the research load would be desirable. If the schools have to compete with the private laboratories more care may be exercised in selecting research projects. Fewer projects but more profitable ones could still keep the income at a reasonably high level. Also, if colleges seek to obtain fundamental research in preference to research having direct commercial application, their contract research work should be closely in line with the normal work of their laboratories.

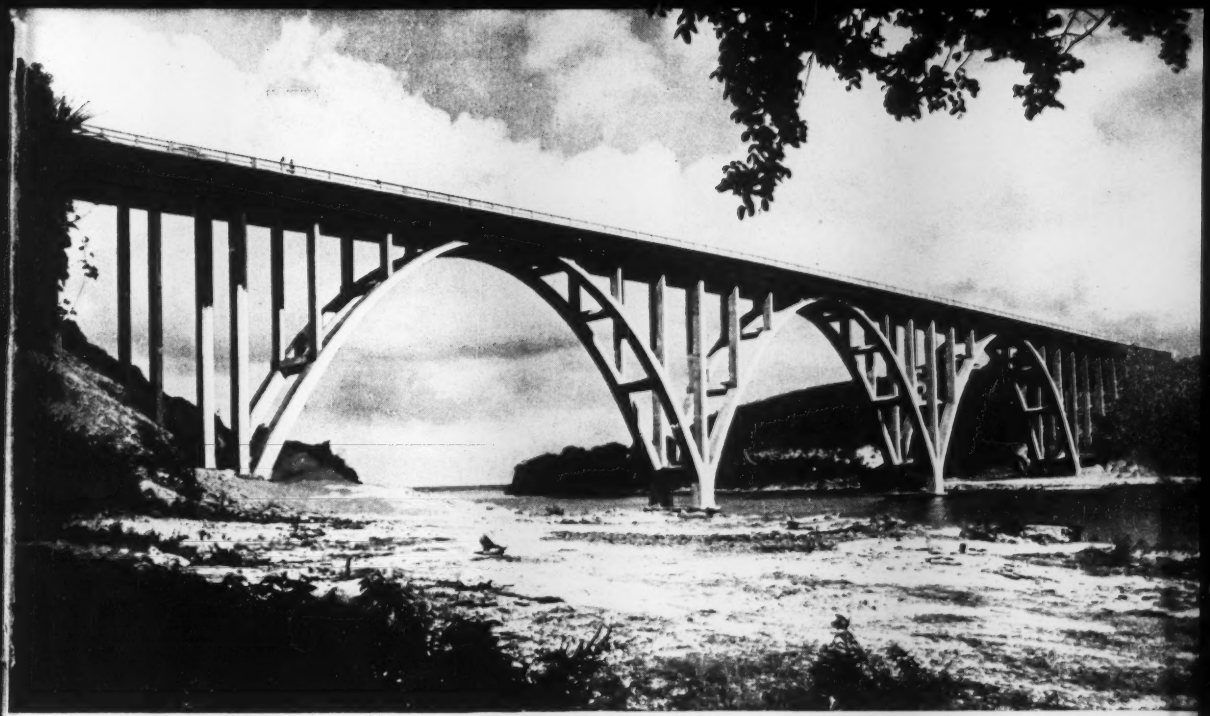
Public service by engineers

A BOOKLET titled "A Water Policy for Texans" (ENR Dec. 4, p. 28) was presented recently to Governor Allan Shivers of that state. This cogent document had been prepared in committee by the Texas Section of the American Society of Civil Engineers, and thereby a true public service had been performed.

After a full year of compilation and research, sound principles have been succinctly set forth so that the Governor has in hand the best thinking of those qualified to guide him on the engineering concepts of sound water policy. Moreover, the document has real timeliness. It becomes available at a time when its usefulness is spotlighted by a serious local drought situation, and Governor Shivers already has embraced one of its recommendations. Following a state-federal controversy over release of water in the new Whitney Dam reservoir for the benefit of downstream rice farmers, he has announced an intention to ask the Supreme Court to reestablish the principle of state ownership of water behind federal dams (ENR Nov. 27, p.17).

To Carr Forrest, past president of the ASCE Texas Section and nominee as next president of the National Society of Professional Engineers, who instigated the policy statement, to Simon Freeze who headed the committee, and to all who worked on it, the profession owes a vote of thanks for the initiative they showed in assuming responsibility for undertaking the project. Here was ASCE local-section activity at its best—purposeful and in the public interest.

The water policy statement itself emphasizes the need for enlightenment of government officials in engineering matters "by public-minded engineers." The country needs more of them.



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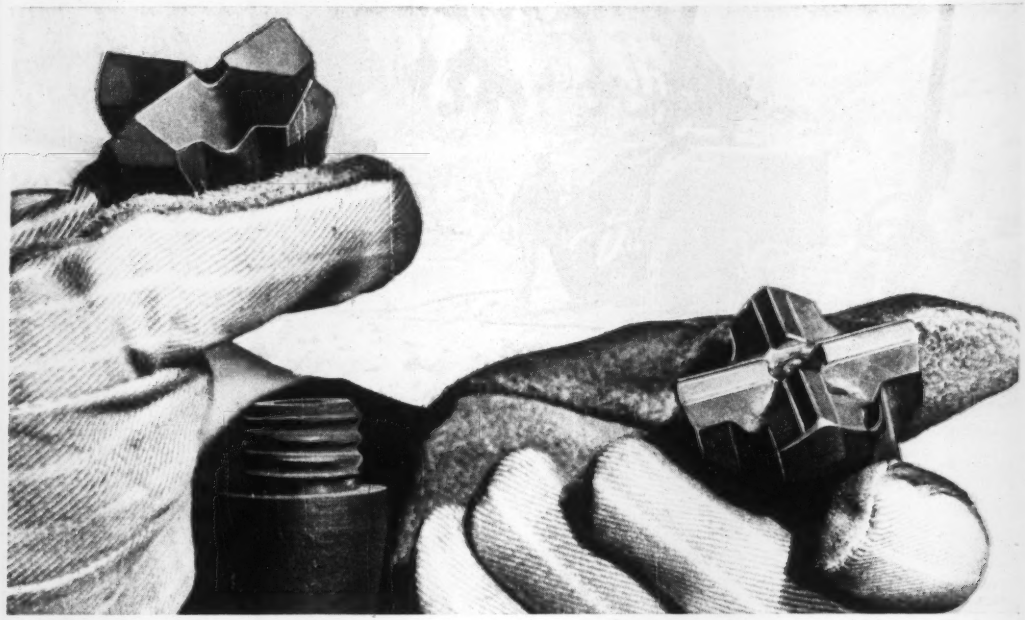

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